SUPPLEMENT.

je Kining Immal,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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THE SCOTCH IRON TRADE-No. VI. THE SHOTTS MINERAL FIELDS.

THE SCOTCH IRON TRADE—No. VI.

THE SHOTTS MINERAL FIELDS.

To a greater extent than the majority of the ironmasters of Scothad the Shotts Iron Company combine the functions of manufacturing iron with those of working the ores to be found in the extensive mineral fields of which they are the lessees. It is usual for Seoth ironmasters to lease and work mineral fields for their own Seoth ironmasters to lease and work mineral fields for the purposes; but it is not usual for them to work mineral fields for the purposes of others. This, however, is done by the Shotts Iron Company to a very large extent. They are among the largest mineral purpose in Scotland. Their operations are carried on in Lanarkshire, sense and Mid-Lothian, and Fifeshire, and their various fields embase not only blackband and clayband ironstone, with limestone and coal for their own furnaces, but also common, gas, and other cals for sale. The firm also carry on, in addition to the Shotts Inomorks, which is situated on the main line of the Caledonian Ballway between Edinburgh and Glasgow, and almost equi-distant between the two cities, the works of Castlehill at Carluke, where here are three furnaces in blast.

With reference to the mineral fields worked by the Shotts Company, we may be permitted to offer some facts, especially as they have lately been opening up some new fields, which give promise of peat-fichness and fertility. Within three miles of the furnaces at peat-field by been opening up some new fields, which give promise of peat-fields worked by the Shotts Company works the company have long worked blackband ironstone. Bey had to depend upon these pits for their main source of supply daring many years. But, in the nature of things, the constant and aeronous drain made upon this field could not last for ever, and long lefore it gave signs of exhaustion they purchased the lease of other fields in the neighbourhood of Airdrie, which they still continue to develope. Airdrie is the richest district in Scotland for the blackland pits, and at

and and a contract of	00 24 244		
To	nnage to we	rk. T	onnage won.
Amund Shotts Ironworks	11,233,720		4,165,620
Morningside Lease	1,195,200		587,100
Castle Hill and Hyndshaw	1,775,000		50,000
Polkemmet	17,600	******	10,800
	14,221,520		4,813,520
Loanhead, Dryden, and Penicuick The furnace coal already won is equal to t	41,978,960	regulreme	2,555,520
hting furnaces at Shotts and Castlehill for n	early 15 year	rs, and th	nere is a larg

hing furnaces at Shotts and Castlehill for nearly 15 years, and there is a large quantity of blind, steam, and honsehold coal for sale,—exclusive of Mid-Lothian, in which the table shows 2,509,000 tons of coal are won, chiefly at Loanhead, which sequal to 25 years' output of 100,000 tons annually. Besides the iron-maing coal and common coal for sale, the table shows large quantities of ordinary gas coal, also Boghead mineral or gas coal at Polkemmet.

		THE PARTY OF THE	AUA UA		TING CALME		
			Tonnage to work.			Tonnage won.	
	Total Clayband (H	law Stone)			1,995,130	******	. 785,880
	Total Blackband	ditto	*******		7,078,463	******	2,411,963
					0.040 100		0 107 040

Company look forward to it as their future main source of supply. When smelted along with the richer blackband of the Airdrie distill the richer blackband of the Airdrie distillation to the supply of the supply and the supply of the supply of the supply of the Esk Valley Railway, about a mile distant, for conveyance to the Esk Valley Railway, about a mile distant, for conveyance to the blast-furnaces at Shotts. The ironstone won by the explicit of the Shotts and the Castle-bill Works for about 18 years, at their present rate of production, which is fully 750 tons per week for each of the six furnaces in blast.

Company look forward to it as their future main source of supply. When smelted along with the richer blackband of the Airdrie distinction of the pipes is all but unknown. When completed the whole piece appears as if it had been cast in one solid mass. All the pipes are tested to the extent of 500 lbs. to the square inch, and are so arranged that any injury to one would in no way affect the others. The gantry on which the pipes are laid for the others. The gantry on which the pipes are laid for the others. The gantry on which the pipes are laid for the others. The gantry on which the pipes are laid for the pipes are laid for the others. The gantry on which the pipes are laid for the others. The gantry on which the pipes are laid for the others. The gantry on which the pipes are laid for the others. The gantry on which is full the others. The gantry on which the pipes are laid for the continue, and are so arranged that any injury to one would in no way affect the others. The gantry on which the pipes are laid for the continue, and the others. The gantry on which the pipes are laid for the continue, and the others. The gantry on which the pipes are laid for the continue, and the others. The gantry on whi

16 17 27½ 28¼ pm. 4 ½ pm. 4 ½ pm. 4 ½ pm. 4 16 5½ 5½ ½ 3½ pm. 2¾ pm.

s, silver;

Stock Ex-

duction when the works are enlarged, and, as we shall hereafter have occasion to show, an extension of the works is not at all a remote contingency. From their gas coal field alone the company calculate on a net profit of not less than 70002, per annum; but this is likely to be largely increased in consideration of the enormously enhanced cost of minerals. So far as their leaseholds in the valley of the Esk are concerned, the company will soon be placed in possession of better facilities for their development, as additional railway accommodation will shortly come into operation.

In a succeeding article we shall treat of the Shotts Ironworks, tracing their progress from their origin to the present time.

IRONWORKS AND COLLIERIES IN YORKSHIRE. THE WAKEFIELD PATENT FUEL ECONOMISER WORKS.

There are few localities in South-West Yorkshire where more charming and varied scenery is to be found than in the neighbourhood of Wakefield, although the land around it overlies some valuable seams of coal. In its vicinity, too, are some handsome mansions; amongst others may be mentioned Bretton Hall, the residence of Mr. W. B. Beaumont, M.P., the owner of the largest lead-producing mines in the world, and Walton Hall, the seat of the late Mr. Waterton, the well-known naturalist and traveller, the coal on which estate is now about to be worked by a company. Wakefield, besides being a great centre of the corn trade, has also several important works within it, one of the principal being the extensive establishment of Messrs. Green and Son, who have a world-wide reputation for their patent fuel economisers, for using up the waste heat from steam-boilers, and there are now a number of them in operation in connection with various works to the extent of upwards of 1,300,000 horse-power. They are in extensive use in the principal manufacturing districts in all parts of the kingdom, as well as on the Continent, a great many being at work at Lille, Paris, Roubaix, St. Omer, Verviers, Leyden, Haarlem, Leipzig, Reichenberg, the colonies, &c. The economisers are also in use in connection with the boilers at Messrs. Green's own works, and the advantages even to an ordinary observer are patent. There are few localities in South-West Yorkshire where more charmworks, and the advantages even to an ordinary observer are patent. It is an admitted fact to persons conversant with steam-boilers that in all cases there is a considerable amount of heat which escapes by means of the chimney that ought to be utilised. The economiser, which consists of a number of pipes, is so arranged that leakages are avoided by the exclusion of all bolts, rings, cement, or putty, the joints being all turned and bored "socket joints," the metals forced together by nowerful hydraulic machinery, expressly adapted for the together by powerful hydraulic machinery, expressly adapted for the purpose. The firm is also the patentees of scrapers, or cleaners, in connection with the economisers for cleaning the whole length of pipes from top to bottom. They are made in movable parts that work or centres, so that they accommodate themselves most perfectly to the surface of the pipe, and are furnished with a hardened thin cutting edge, so that any formation of soot is entirely prevented, and a perfectly clean and effective heating surface is secured. The improved scrapers have also the advantage of cleaning the whole length of pipes in a uniform and stady manner.

of pipes in a uniform and steady manner.

The works are of quite an ornate character, substantial yet handsome and commanding, and are situated close to the railway (to
which there is a branch line) and the Calder river, giving a double some and commanding, and are situated close to the railway (to which there is a branch line) and the Calder river, giving a double advantage for the transporting of the products of the establishment to all parts of the kingdom. The fitting-shop is large and lofty, replete with all the necessary machinery and tools. There are in the room eight planing-machines, by Maclea and Marsh, of Leeds, and other well-known makers. One of the planing machines has been in use upwards of 40 years, and is amongst the best in the place. Most, if not all, of the others are supplied with Whitworth's double tool-boxes, planing both ways at the same time. Some very fine boring-machines are in close proximity to the plasers. One of them has eight cylinders, all working at one and the same time, being self-acting, and others with two cylinders. There are eight machines altogether, boring at opposite ends at the same time, each box being fitted with two tools, all self-acting feeders. A number of screw-cutting lathes are in the same part of the building, all self-acting, together with seven slide lathes.

The casting shop is a large and well-arranged building, there being all the appliances for economising hand labour, and ensuring perfection in the work turned out. By an ingenious arrangement the pipes and other requirements are machine cast, and so securing the greatest accuracy, and at the same time effecting a great saving in labour. For the conveyance of the metal to the moulds, those for pipes being fixed on an incline, there are rails overhead, by which it can be taken from one end of the building to the other. Here we were shown some ring boilers, which can be worked up to 100 lbs. to the square inch. They have some advantages over the ordinary boilers, as they can be turned round to any extent required. They are about 3 ft. diameter in the inside, and 4 ft. 6 in. in diameter on the outside.

are about 3 ft. diameter in the inside, and 4 ft. 6 in. in diameter on

The latter, &c., are driven by a horizontal high-pressure engine, the piston working at the rate of about 750 ft. per minute, the pressure being about 100 lbs. to the square inch. The boilers are of the usual type, and are provided with the economisers, with the im-

proved scrapers.

In another part of the building is a powerful hydraulic-press, with 20 rams, for forcing the pipes into the top and bottom boxes, 10 at each end. By means of the machinery and appliances the pipes are fixed in the most thorough and complete manner, and such is the accuracy in casting and finishing them, and so truly are they gauged, that any accident to even one of the pipes is all but nuknown. When accuracy in casting and inishing them, and so truly are they gauged, that any accident to even one of the pipes is all but unknown. When completed the whole piece appears as if it had been east in one solid mass. All the pipes are tested to the extent of 500 lbs. to the square inch, and are so arranged that any injury to one would in no way affect the others. The gantry on which the pipes are laid for the purpose of being forced into the boxes is a solid mass of iron, weighing about 10 tons.

The firm imports a large quantity of the best pig from several dis-

boilers, the consumption of coal and water was as follows: -Without boilers, the consumption of coal and water was as follows:—Without economiser—coal, 3 tons 17 cwts.; water, 5600 gallons. With economiser—coal, 3 tons 3 cwts.; water, 5600 gallons: showing a saving of 18 per cent. The water was supplied by a Gifford's injector in the first case direct into the boilers, and in the second through the economiser, and then into the boilers. As a rule, the saving in fuel averages 20 to 25 per cent. Great, then, as are the advantages obtained in this country by the use of the fuel economiser, they are at least doubly so in those distant localities on the Continent where the coal has to be imported from a considerable distance. In saying that the works will well repay a visit, we have to state as a concluding remark that we are indebted to the courtesy of Mr. Green and his manager for the above brief notice of an establishment which contains much that is truly interesting.

AMENDMENTS ON THE MINES REGULATION BILL.

TO THE EDITOR OF THE MINING JOURNAL,

-We desire to call the attention of your readers to a most ma-It is stated that an intention exists to move the omission of clauses

24 and 25 of the Government Bill as they now stand, in order to sub-

stitute the following:—

"For the purpose of granting certificates of competency under this "For the purpose of granting certificates of competency under this Act boards of examiners shall be constituted under the superintendence of a Secretary of State in the various districts to which Inspectors shall be appointed, and every such board of examiners shall consist of nine members, one thereof a person appointed by a Secretary of State, three practical mining engineers, and three mineowners elected by the mineowners of the district as after mentioned, and two miners of the district elected as after mentioned. The first of such elections shall take place on the first Wednesday of the month of February, 1873, and subsequent elections on the first Wednesday of February in every third year thereafter; and the appointment by the Secretary of State shall be made one month thereafter respectively, and any occasional vacancy caused by death, resignation, or disqualification shall be filled up within one month after it occurs; and any person so elected or appointed shall continue in office till the followperson so elected or appointed shall continue in office till the following general election. A Secretary of State shall fix a convenient place within the district at which such elections shall be held, and shall have power to determine any disputed election.

Such elections shall be conducted as follows:

I. The persons entitled to vote in the election of three practical mining engineers and three minerowers of the district as members.

mining engineers and three mineowners of the district as members mining engineers and three mineowners of the district as members of the board of examiners shall be the owners of mines within each district falling under this Act respectively; and the persons to be elected shall be such owners, to the extent of three, and practical mining engineers to the extent of other three. Every such mineowner shall have a vote for each working pit or mine belonging to him within the district. Where the owner is a company any one partner may act for the whole, and where the owner is a corporation the same may vote by any official empowered to that effect in writing. The persons entitled to vote in the election of two miners as members of the board of examiners shall be the miners of the district. Each miner of full age shall have a vote.

ing. The persons entitled to vote in the election of two miners as members of the board of examiners shall be the miners of the district. Each miner of full age shall have a vote.

II. The Inspector of the district shall, thirty-one days before the first and each triennial election, make up a list of the owners of mines within the district, the numbers of pits or mines belonging to them respectively, and the consequent number of votes to which each is entitled; and also a list of the mines within his district, and shall forthwith cause a notice to be published in two or more newspapers within the district; that such lists will be revised and adjusted by the revisers after provided for at a place and time specified, such time not being less than ten days before the coming election.

III. The Secretary of State shall from time to time, and at least days before the first of such triennial elections, nominate as revisers two justices of the peace, or a stipendiary magistrate, having jurisdiction within the district, to revise and adjust the lists of voters aforesaid, who shall meet at time and place fixed as aforesaid, hear any objections to the list made by persons on such list, or claiming to be put thereon, or to have any other person's name removed therefrom. The revisers shall hear parties viva voce, and determine the matter in question; and that the list so revised shall be the list of voters entitled to elect members of the board of examiners for the voters entitled to elect members of the board of examiners for the

voters entitled to elect members of the board of examiners for the next three years.

IV. The Secretary of State shall thereupon fix the place within the district at which the election of examiners shall be held, and appoint a person being a mayor, provost, or stipendiary magistrate, to preside and conduct the same, subject to such rules as may be by such Secretary of State established.

V. All necessary expenses incurred in the revisal of lists, including reasonable remuneration to the revisers, as also in conducting such election, including a reasonable fee to the person presiding, shall be paid and defrayed by Her Majesty's Treasury."

Now. Sir. we most respectfully, though very emphatically, protest

Now, Sir, we most respectfully, though very emphatically, protest against the provisions embodied in such proposed substitution, so far as the formation of the certifying board is involved. While we would have it distinctly understood that we think the framework of the clause itself a decided improvement upon the two the places of which it would fill (the 24th and 25th), we are strongly impressed with the opinion we venture to place before your readers.

opinion we venture to place before your renders.

It will be at once perceived that neither in the Bill as it now stands nor in the proposed Amendment is there any provision for seats at the Certifying Board of Competency to be occupied by underground colliery managers, persons upon whose knowledge and care very greatly depend not only the safety of the mine itself, but to a large extent the more immediate and vital operations of the colliery. It is, therefore, thought very desirable, not to say actually incumbent, on the part of the Government to provide (alike for the safety of masters and men) such representative element; and for this purpose it will be proposed in Committee to alter the language of Clause 24 (page 16) as it now stands in blue ink in the amended Bill, so as to ensure, if possible, such representative power.

such representative power.

The method by which it will be sought to attain this necessary object is to insert some words and strike out others, so as to form a certifying board, thus constituted—

Two Coal Owners,

Two Mining Engineers, Two Underground Collliery Managers,

Two Practical Miners, and

One Person to be appointed by the Secretary of State;

The board (so formed) will, therefore, not be altered as to numbers but will (as we think) be more equitably and justly constituted.

May we, therefore, ask you to find room for this letter—for the length of which we have to apologise—in the early issue of the Mining Journal.

Signed,

THOMAS STEPHENSON, BENJAMIN KEIGHTLEY.

Authorised deputation from the West Yorkshire Underground Viewers' As sociation, representing about one hundred important collieries.

1, Piccadilly-place, W., April 16.

MINES REGULATION BILL-CERTIFICATED MANAGER .

SIR,—I, no doubt with others of the readers of the Mining Journal, am much obliged to "Nitram," for his information as to the status of the Prussian "responsible manager" of mines with the unprosouncable appellation. There is nothing, however, in Mr. Bruce's Bill which leads me to suppose that the management clause will "be applied in a similar manner to that of Prussia."

applied in a similar manner to that of Prussia."

Nor do I exactly understand why the idea of certain qualifications being required for an underground manager tending to produce inefficiency, should strike your correspondent as being ridiculous.

Many years ago I selected one of the coalhewers at a colliery to be a deputy overman; in a very short time he became an overman, or "underground manager," and he subsequently became an underviewer, and afterwards the chief viewer of large collieries abroad. He was one of the best overmen I ever knew; and it is extremely probable that had Mr. Bruce's Bill, during the time of his early promotion, been law this man would have continued a hewer of coals. motion, been law this man would have continued a hewer of coals, and that the situation he so ably filled would have been held by a less capable person.—April 15. G.

TIN DRESSING.

SIR,—Before introducing the above subject, some few weeks since, I was fully aware that I should incur some measure of odium in attempting to set this great branch of Cornish industry on a sound scientific basis. Looking at the interests involved—capital investing on our mines; carelessness and apathy displayed on our dressing-floors; the immense length of works, capital, and people employed to recover the wasted tin—is a subject well worthy a far abler pen than mine.

I have no differences with the mine agents and tin-dressers, or with the river workers, but with the reaste entailed on the legitimate adventurer. To see the works erected, and now in course of construction, from the Tamar to the Land's End to recover the wasted tin should surely cause every Cornishman to ask, and seek to know, the reason wify this? As a statesman said the other night in the House of Company I dest personation and personallies and have no of Commons, I detest personation and personalilies, and have no fear in discussing the subject with the ablest tin-dresser, if he gave his real name, but shall decline fictitious signatures; noticing, how-

nis real name, but shall decrine incitious signatures; noticing, nowever, "Tin-Dresser," in your last issue, not for the sake of his arguments, because he gave none. "Tin-Dresser" is like the naughty
boys in our street, who give the bell a long pull and run away.

I began about 35 years ago as stamps boy, and have gone on to
working-man, under-agent, and manager; no doubt the managers
of our tin mines are consulted about other mining properties than
tin, and no one doubts their abilities and capabilities of giving sound
advice. If to send a lifeting to attain to the distinguished exceladvice. If to spend a lifetime to attain to the distinguished excel-lence of "Tin-Dresser" were necessary, then I come short. I was not aware till now that such high, rare, and assiduous application was necessary to reach the perfection of wasting, as is now so much in vogue. I may safely say no improvement in principle has taken place in Cornwall during the last 50 years, as I think, with all the

place in Cornwall during the last 50 years, as I think, with all the modern appliances, more tin is wasted now in proportion to the quantity of stuff stamped than theo. That many labour-saving appliances in the manipulation have been introduced I do not deny, but the principle is the same in all the buddles, &c.

"Tin-Dresser" feels ashamed of his letter before he got through, and by way of a little salve to his ebullient temper, closes by saying something about a machine at Roskear; letting out most conclusively that a change or innovation in the time-honoured custom was absolutely necessary. I ought to apologise to you, Sir, for taking up so much space, as I do not consider "Tin-Dresser" a foeman worthy of my steel pen—little dogs can only bark. The principle I started with is still intact. Mr. Green must paddle his own cance.

In my next, with the maker's permission, I hope to give some details of a new stamps, which, from what I have seen of its capabilities, I am quite sure will stamp 15 tons per day, of 20 hours, of average Cornish tinstuff.

Nursery-street, Pendleton, Manchester.

Nursery-street, Pendleton, Manchester.

MINING IN IRELAND.

SIR,-I have just seen'Mr. Tonkin's letter in the Supplement to last SIR,—I have just seen'Mr. Tonkin's letter in the Supplement to last week's Journal in reference to the Glandore Mine. The late Captain Thomas Tonkin worked this manganese mine over 30 years ago successfully, until some of the beds were exhausted, and others became so irony that it would not sell. The quantities of rich ruby, &c., coper ore, said to have been raised, never appeared in any market, and I am still doubtful if iron ore will be found in large paying quantities. I am not an enemy to "Irish mining:" nor can I possibly have an ill-feeling towards any person connected with Glandore Mine, because I do not know them, but false statements will never make a good mine.

YOUR CORRESPONDENT.

"WHAT TO SELECT-WHAT TO AVOID"-No. XVII

"WHAT TO SELECT—WHAT TO AVOID"—No. XVII.

SIR,—At the beginning of the year, in reviewing the prospects of the metal market, I ventured to remark "that the forthcoming supplies of tin being unequal to the growing demand, an important advance in price may be reasonably expected." Since those remarks appeared tin has considerably advanced in value. Referring to copper, I pointed out that an important advance in price was absolutely certain, basing my calculations upon a comparison of the forthcoming charters from Chili with those of previous years, and also upon the increased demand arising from the healthy expansion of trade. Chili bars were then quoted 83L; the present price is 100L. As to lead, I remarked at the same time that, although at a good remunerative price, the general condition of the market indicated a further advance. English lead was then 19L; it is now 19L 17s. 6d.

These were the reasons which induced me, many months since, to write in these columns "that no more favourable opportunity could possibly be selected for the investment of capital in sound dividend and progressive home mines." I need not now point out how strikingly these opinions have been verified by results, nor draw attention to the highly satisfactory and equally encouraging condition of mining

the highly satisfactory and equally encouraging condition of mining

generally.

Referring to the subject of "Circular Mining," to which I have Referring to the subject of "Circular Mining," to which I have directed attention on two or three occasions, it seems necessary to mention the fact that I do not put myself in opposition to the legitimate use of circulars; but what I do most strenuously contend is that it is the duty of everyone who has a direct or indirect interest in the promotion of bona fide mining to fearlessly come forward and co-operate in stamping out the present growing evil of fictitious circulars. I could point to many instances where five or six circulars, purporting to be published by different persons, are really so many branches of one firm. It is thus the unwary are unwittingly entrapped, and legitimate mining unjustly suffers. The strange part of the transactions that are carried on under such a pernicious system is that these ubiquitous creatures invariably exact such prices for that which they have to vend that a proportionate interest can be secured which they have to vend that a proportionate interest can be secured upon very much less terms in well-conducted financially sound mines, and possessing a really tangible value. I hope next week to make a few remarks relative to some of the leading Cornish mines which I

purpose visiting during the next few days.

MINERAL HILL MINE.—This is another unhappy and regrettable instance of buying a mine at what may be properly termed a fancy value. Apropos of this vitally important subject—that is, to those whose interest it is to uphold legitimate mining—I have already written in this series of letters that if a mine really be in a remune-

rative condition, with large reserves of ores, a cash payment may not, under such circumstances, be incompatible with the purposes of vendees; but, even then, the amount paid should in no case exceed the netvalve of the ore actually laid open, which, upon an average, should never be estimated at more than about one-third its value in situ. Upon this basis, which, whatever may be said to the contrary, is the only basis for shareholders to calculate the commercial value of any foreign mine, what amount would have been paid for Mineral Hill? foreign mine, what amount would have been paid for Mineral Hill?

Pinner's Hall, Old Broad-street. FREDK, WM. MANSELL,

REMARKS ON THE ORIGIN AND FORMATION OF METALLIFEROUS VEINS.

SIR,—The formation of every complex entirety in Nature is known to be gradual, and metalliferous fissures can form no exception to the rule. Nor would the exceptions which are assumed, if true, render the process of vein formation more acceptable to our reason, or corresponding to its analogies in the other departments of nature. What is there conceivably more difficult in the gradual enlargement of a fissure by chemical action than in the decomposition of similar substances by similar agencies elsewhere, especially when it is admitted that such fissures previously existed in mechanical outline, and are known to be replete with the necessary instruments for such enlargement? There was philosophy enough in the world in Job's day to enable him to say from observation that water, by mere cusual mechanical action, wore the stones, but how much more potent are its chemical powers, as proved by numerous experiments in the present chemical powers, as proved by numerous experiments in the present day? And how much more strong, or ought to be, our convictions and assurances of the existence of such powers when ascertained, as they are demonstratively by scientific experiments, as well as from enlarged

are demonstratively by solentific experiments, as well as from enlarged views of practical experience?

If the waters dissolve, as they unquestionably do, the metallic particles, and extract them atom by atom from the containing rocks, we can do no violence to our reason, nor offer any opposition to facts, by assuming that a similar agency is at work upon the sides of the fissures, decomposing those parts exposed to such action, and that some of the material particles thus removed may enter into combination, both mechanically and chemically, with the metals deposited from this and other sources as gangue associations, whilst that which from this and other sources as gangue associations, whilst that which may be unfit, or in excess of such requirements, may be ejected, and borne by the retiring currents of water—for we must admit an out-let from as well as an inlet to the fissures, otherwise the waters must become stationary, and their functions as an agent altogether cease—to enter into new combinations, and probably perferm acts of restitution, by compensating for what had been extracted previously by the same or other aqueous currents in the same channel. That such a conclusion is not only possible but probable in the highest degree all the accompaniments and characteristics of the phenomenon itall the accompaniments and characteristics of the phenomenon itself unite to prove. The process requisite is no more difficult than that which is at work forming the blade of grass, the majestic oak, or even more intricate and wonderful animal organism. And as there is an analogy between these, so there unquestionably is, in my own mind, between those and the process observed in the modes of production—retrogressive changes, and reproduction in the mineral kingdom. The assertion of the principle of vegetable life from the germ of a body apparently inextricably involved in an abyss of death, and its triumph beyond such a vicissitude; its spreading its tender fibres abroad in quest of support, which is at once the evidence of an indestructible life within itself, and the dependence of that life for its development on its associate conditions and surroundings; its drawing to itself not only the means of support, but of growth and expansion; the extension of its roots through the compact and and expansion; the extension of its roots through the compact and resisting soil, whether as delicate fibres or developed canals, or conduits of sustenance, to a thousands ramifications of life, is equally incomprehensible to our limited faculties, as the enlargement of metalliferous fissures would be by or from forces inherent within themselves; and if we look at the way in which the animal structure is built up and sustained the process and its results, though strikingly analogous, are still more wonderful. The arbitrary manner of conveying and receiving substance into the system, its preparation for digestion by mastication, and its mixture with the saliva of the mouth, its passing thence into the stomach, where, by coming into contact with the gastric juice, it is decomposed and converted into chyme; and this again still further effected by contact with the bile and secretions from the pancreatic gland undergoes a complete cheand expansion; the extension of its roots through the compact and chyme; and this again still further effected by contact with the bile and secretions from the pancreatic gland undergoes a complete chemical change by its conversion into chyle, and so on, until eventually, by mixing with the lymph or water, it receives the proper consistence for passing into and mingling with the blood, from whence it is carried to the heart and lungs, to receive its vital and life-sustaining properties and powers; after which it is again propelled through every ramification of the venous system, capilliary and otherwise, adding atom to atom, repairing the waste incident to motions, building up and completing, amongst other mineral fabrics, that beautiful and unparalleled mechanical and organic structure—the human body. Can greater improbabilities attach to the enlargebeautiful and unparalleled mechanical and organic structure—the human body. Can greater improbabilities attach to the enlargement of fissures in the rocks when we know that all the requiste instrumentalities for such enlargement are at hand, than to that of a bone in the animal system which was but just previously mere cartilage; but subsequently, by ossifying, it became bone, and one of the supports of the animal fabric, and gradually enlarging from the action of an expanding force from within; by which also it assumes a tubular form, and increases from such expanding pressure both in its external and internal diameters, and forming at the same time a channel for supplying the necessary material for the internal enlargement of the bone.

The essence of all corporeal being in its growth and development appears to be motion, and motion, both in idea and fact, is inseparably associated with life, and any interruption of which tends to disease and its consequent decay. It is, therefore, to be presumed that the individual particles composing organised bodies of every kind are in a state of constant flux and mutation, unless such changes are obstructed and impeded by an arbitrary disarrangement of the parts from foreign opposing forces, superinducing disease; and their

are obstructed and impeded by an arbitrary disarrangement of the parts from foreign opposing forces, superinducing disease; and their motion is not suspended, but still goes on, though in a retrograde direction, undoing what it was previously engaged in accomplishing; and thus motion symbolises life, its obstruction merely serves to divert it into other channels, and the momentary impediment surmounted serves only to accelerate its progress.

This is undeniably true of both the animal and vegetable economy, and what evidence, it may be asked, is there that it is not equally true of the mineral economy? Indeed, every physiological fact pertaining to dynamical influences, and their effects upon matter, with which we are acquainted or have ever observed in our subterrangem.

taining to dynamical influences, and their effects upon matter, with which we are acquainted, or have ever observed in our subterranean peregrinations, when interpreted without prejudice becomes an evidence of greater or less magnitude and force that all the individual atoms composing the earth's crust are with one degree of velocity or another in a state of perpetual motion. The fisures which constitute the receptacles of metallic and other minerals we have sufficient evidence to know were originally outlined by mechanical means, and filled like event that its returning the contract of the contract and filled, like every other interstice, pore, and cavity of the earth, with water, and that such water is incessantly in motion, and is charged with the instruments of dissolution of certain rocks, and of the renovation of others. That subjected to the wearing influences of water the hardest substances are effected in one way or another, and very frequently to the extent of their entire dissolution—the destruction or suspension of all their previous distinctive characteristics and sensible qualities.

The gradual enlargement by decomposition of the sides of fissures though only sufficiently far apart to admit of the penetration of water, perforce of great pressure, and such water possessing the requisite qualities for reducing as a solvent all the ingredients entering into the composition of the rocks on either side of such fissures, and with which it is brought into immediate contact, is as easy as the chemical changes which are wrought in the rocks above ground by the simple action of atmospheric air and other casual influences. The simple action of atmospheric air and other casual innuences. The fact that such waters are always charged to a greater or less extent with the several substances in solution which are known to compass the rocks through which they permeate is of itself prima facie evidence of what purpose it is intended to subserve in the mineral kingdom. These ingredients are not necessary elements in the composition of water, but extraneous matters, which may or may not exist therein and which impart is travergies and condition it would not therein, and which impart to it properties and qualities it would not

otherwise possess, but do not alter its radical features or constitution.

From certain developed and intelligible facts in the mineral king dom, and their analogies in the other two departments of natural is to be presumed that lodes and cross-courses of every kind, according to some systematic arrangement in nature, are in their serent groups simultaneously formed, and each individual lode and cross-course is but a part of a system of which each part is interdependent on the others, and variable in magnitude and extent by local influences, however remote in point of time they may have operated and that the lodes are necessary to the formation of the cross-course as the cross-courses are to the formation and productiveness of the as the cross-course are to the alleged difference of age between lodes and cross-courses of the same group, said to be determinable. lodes, neither of which could have been difference of age between lodes and cross-courses of the same group, said to be determinable by their intersection—that the one which is continued through the other, whether otherwise displacing it or not, is reported to be of posterior origin is totally presumptive, and unsupported by any fast or facts I have ever seen or heard of in connection with such phonomena, and is apparently, if not evidently, to me the most unseless tific conclusion ever arrived at, credited to science as one of its discoveries, and so extensively accepted and endorsed by celebrated as plorers in the arcana of geology.

It is something to assail what is regarded as an established facing geological science, and it is not without due delibration that Idoos, but I am convinced that truth has its claims on every one of us, and until more substantial reasons are assigned for such occurrences that

until more substantial reasons are assigned for such occ

but I am convinced that truth has its claims on every one of us, and until more substantial reasons are assigned for such occurrences that I have hitherto met with, or can form conceptions of in my on mind, I shall feel myself justified in adhering to the views derived from observation and experience, when conformable to reason, and harmonising with nature in all her departments.

If I should ask by what power or force the blade of grass, shrub, or tree extracts the nourishment from the parent earth which they derive from that source I should probably be told that it was by capillary attraction; but if I further interrogate by asking what is capillary attraction in its relation to the growth and expansion of vegetable life, I should probably be regaled with something most truly Aristotelian so far as its philosophy was concerned, which would merely explain the mode and the effect of the operation, and leave altogether unanswered the mystery of the phenomenon itself—the specific cause. But if I were similarly interrogated respecting the gradual widening of fissures in the rocks by the chemical action of water, I might be able to affirm, and without fear of successful catradiction, that the invidious waters possessed a power of penetralism which enabled; them to insert themselves interstitially between the molecules of matter, and thus by interposing a sensible barrier to the action of molecular attraction their affinity for each other wasover, come, and decomposition immediately followed. I have already premised that part of the materials won from the sides of the fissures in this way may enter into combination with the metals and form the ores; and part by combining with other elementary substances may form the gangue, or matrix, of such ores, and occupy the same fissures through the medium of the retiring waters, and be by it borns to destinations contiguous or remote to subserve the ever-active and all-comprehensive purposes of nature in the vast and endless process of mutation to which all material bodies ar all-comprehensive purposes of nature in the vast and endless process of mutation to which all material bodies are subject,

Ellsworth, Nye County, Nevada.

ROBERT KNAPP.

THE EBERHARDT, SOUTH AURORA, AND UTAH SILVER MINING COMPANIES.

SIR,—Under the above heading I noticed a letter in the Supplement to the Journal of Feb. 17, and signed "A Believer in White

Pine Pockets."

Having had the management of silver mines in Chili, in stratified limestone formations, for about eight years, subsequently also for two years in Mexico and Spain, producing precisely the same class of ores as those of White Pine—namely, chlorides of silver, called by practical miners horn silver—I believe a few observations and data on the above formations may be found useful in furthering the interests of mines in like formations in the United States for the selfinterests of mines in like formations in the United States, for until

recently, comparatively speaking, they were not known here.

The experience in silver mines in stratified limestone formations in Chili dates back as far as 1808, at which period the silver mines of Agua Amarga, province of Huasco, were discovered. The celebrated mines of El Doctor, in Mexico, likewise in similar formations, were warded for about 20 years and produced as \$40,000.

brated mines of El Doctor, in Mexico, likewise in similar formations, were worked for about 30 years, and produced some \$40,000,000 worth. In 1836 an Indian, of the name of Juan Godoy, chasing some guanacos in the sierras of Copiapo, in Chili, discovered silver mines. Accidentally losing his way, he was forced to camp out for the night, and to collect wood for a fire, which he had to keep up during a great part of the night in consequence of the cold blasts from the Andes. He chose, as is usual, a spot where he could protect himself—namely, a reef that stood out holdly from the ground, or what are called by the miners large croppings. Great was his surprise in the morning on rising at finding large pieces of native silver around the spot where the fire had come in contact with the croppings. It was soon proved by those who set out to inspect the wonderful riches found by the Indian that great masses of horn silver had been discovered accidentally in stratified limestone formations, and that the native silver was due simply to the fire which had come in contact native silver was due simply to the fire which had come in contact

with the ore.

These mines were vigorously worked from 1836 to 1848, and kept some 12 mills constantly supplied. The crushing was carried on by so called Chilian mills and the patio amalgamation. In 1838 Mr. Stevenson, an English gentleman, was the first to make an improvement for working these free milling ores, and invented the tinas, or pan, system of amalgamation, which was exported from Chilit or California in after years. Everywhere I have noticed that these formations produce free milling ores at surface, to a depth varying from 50 to 250 feet.

In one district alone in Chilit called Changaille.

In one district alone in Chili, called Chanarcillo, it was s tained by the dues paid to the Government that the amount of silver produced from these formations in about 12 years reached the sum of \$20,000,000, and this from the free milling ores taken from surface to the depth of 250 feet.

face to the depth of 250 feet.

About the year 1849 these ores gave out completely at the above depth, and in a most sudden way, most discouraging to every mine owner, so much so that the Government granted them leave to "disfrutar," or take out all the arches, or pillars, that the mining law enforce to prevent the mines from caving in; and this is only to be granted after the Government mine surveyors have officially notified that the mines have ceased to be productive.

Mr. John Sewell, an English gentleman, who had owned one of the above mines for some years, and having made a large fortune

the above mines for some years, and having made a large fortune was loth to abandon it, and determined to solve the mystery. He noticed not only the sudden disappearance of all trace of ore, but a sudden contraction of the vein from 6 ft. to about 1 in., and in many places a thin clearage of not more than $\frac{1}{2}$ in. For two or three years he continued his explorations; levels, winzes, &c., were driven, but with the same results; not a trace of silver in the pinched part of the lode. Later on the results; but with the same results; not a trace of silver in the pinched part of the lode. Later on the same applied to all the mines in the district. Sinking was continued till they went through about 280 ft. nearly perpendicular, say 83°, which was the underlie of the lode. At this period of the work he was absent in Europe, fortunately, which induced the manager of the mine to continue sinking for two months longer, awaiting his arrival to abandon the mine altogether. Within the above short period this narrow cleavage, or lode, changed as suddenly again as it had disappeared before, to a width of 6 ft. This event took place in 1851, when the writer of this took the management of the mine, and continued therein till 1857. The ores in this new strike changed completely, their composition being mostly ruby silver ores, without any trace of free milling ores. We have in Chill exactly the same change in the copper mines, from free smelting copper ores (carbonates and silicates, ores that can be smelted into bar copper in one operation) into sulphurets, under similar conditions of depth.

At the depth of about 600 ft., where the sudden expansion of the lode took place, the writer extracted 9½ tons of native silver, which produced 90 per act of this produced 100 per act of the lone heavy melted.

at the depth of about 600 ft, where the sudden expansion of lode took place, the writer extracted 9½ tons of native silver, which produced 90 per cent. of their weight in pure metal on being melted down in the bar furnace. This kidney of native silver was surrounded by masses of pure ruby silver: 400 tons of this ore was

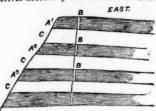
shipped in 1851, in the brig Llewellyn, for sale at Swansea, Wales, and the average per ton was \$2000, or \$800,000 in all.
Shipped in 1851, in the brig Llewellyn, for sale at Swansea, Wales, and the average per ton was \$2000, or \$800,000 in all.
Shipped in 1851, in the brig Llewellyn, for sale at Swansea, were about \$200,000 in all. and the average per too district continued for about four years, and Shipments from this district continued for about \$25,000,000. the calculations of ore shipped to Swansea were about \$25,000,000. the collection of the year 1857 nothing was shipped that was under 800 ozs, to Up to the year 1857 nothing was shipped that was under 800 ozs, to the ton. This was produced in the second bonanza, in the stratified limestone formations; and "Believer in White Pine Pockets" will, ifancy, be somewhat elated at these little pigmy items, which may 1 fancy, be somewhat elated at these little pigmy items, which may 1 fancy, be somewhat elated at these little pigmy items, which may 1 fancy to suffer or to future guidance in White Pine. The suddent ransformation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores to native and ruby silver ores at a formation from free milling ores and from free milling ores and ruby silver ores at a formation from free milling ores and free milling ores at a formation free mil

mations created amongs the control of riches.

The difficulty which arose in Chili on the chloridisation of ores The difficulty which arose in Chili on the chloridisation of ores may apply, later on, to the White Pine districts when they will have may apply, later on, to the White Pine districts when they will have may apply, later on, to the White Pine districts when they will have silver one. This difficulty was caused by the heavy percentage of silver ones. This difficulty was caused by the heavy percentage of lime in the ore, about 90 per cent., and the amount of salt and iron lime in the ore, about 90 per cent. As stated above, the richer ores were silver could be chloridised. As stated above, the richer ores were silver could be chloridised. As stated above, the richer ores were silver ould be chloridised. As stated above, the richer ores were silver ould be chloridised. As stated above, the richer ores were silver ones of the district so 300 css.), on which the freight to poorer ores (that is, of 200 css. to 300 css.), on which the freight to poorer ores (that is, of 200 css. to 300 css.), on which the freight to poorer ores (that is, of 200 css. to 300 css.), on which the freight to poorer ores (that is, of 200 css.) as a matt, the former with their with copper pyrites, and shipped as a matt, the former with their with copper pyrites, and shipped as a matt, the former with their men fluxing thoroughly with the quartz and pyrites of the copper.

Believer in White Pine Pockets" need not fear for the future results of the district he is advocating, provided competent practical specific provided competent practical specific provided the provided specific provided competent practical specific provided competen "Believer in White Pine Pockets" need not fear for the tuture results of the district he is advocating, provided competent practical men, well versed in these formations, are consulted as to their peculiarities. The following diagram will illustrate how every mine in the Chilian stratified limestone formations, especially in the district of Chanarcillo (where there are some 40 mines on the same lode), were similarly affected by the adjacent stratified and unstratified rocks, and at the same depths all throughout.

Transverse Section of the Chanarcillo District.



[The different bands of rock of this hill averaged each about 300 feet in thick ness, and the aggregate depth of all together 2600 feet.]

A1, A2, A3. - Three different periods of stratification, where the lode averaged from 4 to 8 ft. in width, with great productiveness through every mine. These periods vary from 200 to 300 ft. in perpendicular

thickness. C. C.—Three periods in unstratified, compact, hard rock, same thickness as above; unproductive, to even traces, throughout all the mines, and pinched to from 1 inch to $\frac{1}{2}$ inch. A remarkable fact throughout, to a depth of nearly 2600 feet, was that the fissure, when reduced even to a minimum thickness, varied hardly 3° throughout its nearly.

Longitudinal Section.



E, E. E.—Surface undulations. The perpendicular lines denoting the boundaries of the 40 mines. The size of each pertenencia, or sett, was 600 feet, in all a length of 24,000 feet, of fissure vein, by 2600 feet in depth.

A'.—Free milling ores. A^2 .—Native silver and ruby ores. A^2 .—Sulphurets and antimonial ores, highly charged with iron

pyrites.

As regards "Believer in White Pine Pockets'" reference to the Utah Silver Company (Limited), its management, peculiar formation, &c., I shall reserve for a future article, at a more propitious moment in the welfare of the said company, the causes of temporary failure, and my conviction of its great success, if properly managed, with adequate capital. As to the smelting and mining operations, suffice it to say that until Mr. J. R. Murphy took the management recently the greatest depth attained, and in ore all the way from surface, was 20 feet. This will, at any rate, prove to "Believer in White Pine Pockets" how some English companies are managed out here. At present, and only since the last two months, the devenue. regards "Believer in White Pine Pockets'" reference to the out here. At present, and only since the last two months, the deve-lopments attained, and in ore all the way, in this company's mines are at the insignificant depth of 70 feet from surface, and 12 feet

wide of galena of 65 per cent., and from 18 to 20 ozs. in silver.

Salt Lake City, Utah Territory, March 22. HENRY SEWELL.

REVIVAL OF MINING IN THE GWENNAP AND CHACE-WATER DISTRICTS.

SIR,-The unprecedented demand for tin and the consequent high SIE,—The unprecedented demand for tin and the consequent high prices have been the means of resuscitating several mines in these districts. Among them is Wheal Busy, which, during its last working, made heavy losses, and finally, through the illiberality of the lords not remitting the dues, it collapsed. Although not very deep (about 140 fathoms below adit), the lode in the bottom is very wide, and disseminated all through with tin; at the present time if the water were drained and the necessary machinery erected for returning the tin, it would be one of the best dividend-paying mines in the county; the enhanced price of that mineral being the only cause. Indeed, it is generally felt that it should not have been stopped; it may be compared to several that were fortunate enough to storm the tide over the depression which caused the going down of many a good concern; take, for instance, Carn Brea, which was as near tide over the depression which caused the going down of many a good concern; take, for instance, Carn Brea, which was as near being wound-up at the same time as possible, now selling in the market for something like 180,000L, and paying regular dividends. Tincroft, then selling at about 80,000L, now selling at 280,000L; West Frances, then selling at 13,000L, now selling at about 60,000L; Tresavean shares worthless, now selling at about 30,000L; Cook's Kitchen, then selling at 24,000L, now selling at 120,000L; West Basset, then selling at 5000L now selling for over 100,000L Suffice it. set, then selling at 5000*l*., now selling for over 100,000*l*. Suffice it to say that the few mentioned out of a great number similarly circumstanced are sufficient to show that if Wheal Busy had been per-Suffice it severed with, and not allowed to go down, it would now vie with either of those named, and that success will attend the present enterprising company, who have started to work in a spirited manner, there cannot be a divided opinion. Other mines have followed suite nere cannot be a divided opinion. Other mines have followed suffered wit, Wheal Unity Wood, which was abandoned (or rather the part now to be wrought) some 40 years since, and such is the high estimation the property is held in that, although started about three months, is selling in the market for 12,000%. Other concerns of gonally good property and the first North works. equally good prospects are about to be re-worked. The Great North Downs and Wheal Rose, although only a preliminary meeting of the promoters has been held, the shares have all been allotted, and gone to a good premium, before anything is done towards developing its resources. Two other mines in the same neighbourhood, of equal promise, are about to be started—that of Killsfreth, which, like many others, succumbed during the darpression has been taken up, and others, succumbed during the depression, has been taken up, and a little done at a shallow level, where a lode of tin has been discovered worth 100l, per fathom, this is to be divided into 6000 shares, at 1l. per share; and West Gorland, so high was the entertained opinion

of this sett, that one person alone (Capt. John Mayne) has carried it on for the last 12 months, and erected two water stamps, and is about to put up another, to return the produce. During this time levels have been cleared for a great distance, the backs of which will all come away at a good profit, and from the present limited scale of operations about a thousand pounds worth of tin has been sold, an inspection of which will be sufficient to induce the most sceptical to embark a little capital for its more vigorous prosecution, this mine is also divided into 6000 shares, and is being eagerly sought after.

Wheal Peyor, also started in 3000 shares, with a call of 10s, per

Wheal Pevor, also started in 3000 shares, with a call of 10s, per share, is already selling in the market for about 15,000%; this mine adjoins and is on the same lode as Treleigh Wood, which is selling for about 150,000%, with a call of about 3000% only. There are many others of equal promise about to be started, which I will allude to on another occasion, the present high price of tin reducing the specuon another occasion, the present mgn price of the lative character of mining to more like a certainty.

CHAS, BAWDEN.

"STARTS" IN MINING.

SIR,—You have many times heard of what the miners call "starts"—sudden, and sometimes unexpected discoveries of rich deposits of tin, copper, or other mineral. Of late mining companies have had their starts. The last few months have been remarkable for these, by which many persons have made little fortunes, or are likely to do so. There is a little mine in Redruth called TRELEIGH WOOD, on each share in which I call whe been read which hear heave it which hear heave it which hear heave it which hear heave it was the same of the s

so. There is a little mine in Redruth called TRELEIGH WOOD, on each share in which 1\(l\), only has been paid, but which has been quoted at 210\(l\). It has been said, but I doubt the truth of the statement, that the lode is worth 240\(l\), per fathom. SOUTH CARN BREA, a few months ago, was a poor mine, and consequently the shares were sold at about 5s. or 6s, each, and some were offered for nil. Since then they rose to 81\(l\) 10s., in consequence of the discovery of copper ore; but owing to a failing off in the returns, the price has receded to 5l, per share. The amount of business done in these shares is astonishing, giving immense work to the purser in registration of transfers. Most of the business was done between the brokers, who are great gamblers.

CALVADAOK, In Wendron, a sett taken up by Capt. Tonkin, of Pool, has suddenly become rich in tio.

WHEAL CONCORD (now called the Briton Mine), in St. Agnes, is a large sett granted to Mr. Joel Phillips, of Biackwater, who commenced operations on his individual account, and has been most fortunate in cutting a lode worth, it is said, about 500\(l\), per fathom! The number of shares is 400\(l\), 800 of which he has given to his friends, hoping that they will never put them into the hands of the regulsh brokers!

of the roguish brokers!

WHEAL DANIELL, also an old mine, has suddenly been found rich in tin, so that shares are at a good promium.

that shares are at a good promium. Several other mines in Cornwall have prospered in like manner. Expectations are entertained of a prosperous year (1872). -April 17.

VAN CONSOLS-HISTORY AND PROSPECTS.

-This property has always been, and is likely to continue, a favourite market mine, and will, in consequence, receive an unusual proportion of attention from both "bulls" and "bears." Perhaps a few remarks from one who has watched the progress of this mine for a generation may not prove uninteresting to your readers. From its position, being near the celebrated Van, and traversed the whole length of the sett by the Van lode, formerly known as the great Bryntall lode before Van proved so productive, it only appeared to be a question of time to develope the property into a brilliant prize. It must not be forgotten that when worked as Bryntail it returned dividends, the ore holding right up to surface; but the operations were prosecuted in such a nigagardly manner that the company had to wind-up. There were certain circumstances which made me regard the reported improvements with great caution. It did seem strauge that no sooner was the former manager of Bryntail, Capt. Jas. Roach, substituted for Capt. Corfield, then, as if by magic, a good discovery should be made; and then it was rumoured that the management objected to the mine being inspected. I, however, obtained an inspecting order, and visited the mine, with a mind decldedly prejudiced, and fully expecting to find that the reports had been, at least, highly coloured. Capt. Roach paid me great attention, and gave me every facility for obtaining accurate information. He first pointed out the ore at grass, which evidently was taken from a rich masterly lode. It did not consist of rich specimens, such as are frequently made much of to visitors, but was an honest pile of ore, which would bear favourable comparison with any in the county. My doubts vanished. We then made a very careful in spection of the underground operations. So far from the lode in Little's shaft, being over estimated, in my opinion it was under valued, and appeared likely to greatly improve in depth. I then saw that the former captain had driven a cross-cut from the poor part of the lode, and was then driving parallel with it, which might have been continued ad infinitum without beneficial result. At Guadry's shaft to add it seeing rapidly driven by the side of a splendid deposit of carbonate of barytes, which is like a cap on the lead, and when cut generation may not prove uninteresting to your readers. From its position, being near the celebrated Van, and traversed the whole length of the sett by the Van lode, formerly known as the great

VAN CONSOLS.

VAN CONSOLS.

Sin,—I am glad to see that notice has been taken by "A Shareholder" of the uncalled-for remarks appended for the last two or three weeks to Mr. Rosewarne's advertisement. I protest, Sir, against such remarks upon this or any other company's property as offensive in the extreme to shareholder, and which cannot possibly benefit the dealer making them.

A week or two since another sharedealer wrote me word that the most had been made of the discovery in Van Consols, and counselling me to sell my shares at the then market price, 3½, and buy Pennerley at, I think, 4½. I cannot see that I should have been a gainer by the transaction. Some time ago I was bored by dealers volunteering their advice to sell my New Great Consols for 3½, and buy some trash which was offered at a low price. I fortunately turned a deaf ear to these proposals, and kept my shares. So much for the kind and disinterested advise of these "Circular Sharedealers," whose name is becoming legion.

Southampton.

Another Shareholder.

MINING IN BREAGE, CORNWALL,

SIR,—Cornishmen in general, and miners in particular, have cause for rejoicing at the advances in the prices of tin and copper, which are now so high as to stimulate the energies of mining men in their search after those metals. Brenge is a good tin-producing parish—Wheal Vor Consols to wit, which during the first working, ending the bottoms, lost largely; but on Wheal Metal portion of the sett they are making a profit, and have been so generally for many years. Wheal Vor Consols formerly comprised the following mines—Wheal Vor, Wheal Vreah, Carleen, Polladras, Penhale, Paldown, Wheal Sithney, Carnmeal, and Wheal Metal. The content of the whole of those mines was about 1400 acres. The present company has but a small portion of that area—Polladras, Penhale, Wheal Sithney, &c., being excluded. -Cornishmen in general, and miners in particular, have cause

c., being excluded.

I hear that FOLLADRAS, which is the property of Mr. C. W. Popham, has

dividends. The first working, about 70 years ago, was very profitable under the management of Captain Phillips, then of Godolphin, long since deceased. Working was resumed in 1825, since which there have been considerable profit, but not one call that I remember. The accountant has been there from the commencement-managers and pursers changed many times.

I intend to resume the subject. -April 10.

R. S.

THE PENSTRUTHAL MINING SETT.

SIB,—Having spent my life hitherto in mining, its management and pursuits, I cannot but feel interested in the results of mining en-terprise, and more particularly so in the immediate neighbourhood

SIR,—Having spent my life hitherto in mining, its management and pursuits, I cannot but feel interested in the results of mining enterprise, and more particularly so in the immediate neighbourhood of my birth. I would, therefore, beg to refer to PENSTRUTHAL, or, rather, to the mining sett of the old and once celebrated Penstruthal called the property of the parish of which and the control of Gwennap, in Cornwall. This extensive mining sett was my juvenile play-ground, with every inch of which I am familiar, and can scarcely remember the time when I did not look at it, above all other pieces of myrought mining ground in the western part of this great mining parl-h, as the piece which deserved the outlay of capital. Contiguous, on the south, this sets has Treavaean, Trevellan, and Brewer, all on the Treavean lode, and all, at one time, rich for copper ore. It is stated that from 1814 to 1818 Treavean realized copper ore to the value of 1.839,375, 7a. 6d., and gave in dividends over 890,000. The state of the transmit of the two last-named extraording the penstruhal set on the north is the famous Old Wand Buller. Bounding the Penstruthal set on the north is the famous Old Wand Buller. Bounding the Penstruthal set on the north is the famous Old Wand Buller. Bounding the Penstruthal set on the north is the famous Old Wand Buller. The other was a minimal part of the two last-named extraording the research of the north of the two last-named extraording the research of the north of the two last-named extraordings of the north of the wheel the work of the lode-say, from 7 to 8 fms. deep—and so soon ofter the commencement of operations in an open chasm or cutting made by the ancients, on the back of the lode-say, from 7 to 8 fms. deep—and so soon ofter the commencement of operations in an open chasm or cutting made by the ancients, on the back of the lode-say, from 7 to 8 fms. deep—and so soon ofter the commencement of operations in an open chasm or cutting made by the ancients, on the back of the lode of the lode of the

OLD TREBURGETT MINE.

SIR,—I for one must take exception to the letter of Mr. W. Painter, jun., in last week's Journal. I saw Mr. Tilly, in London, soon after his visit to the mine. He gave me a piece of the ore which he had broken in the mine, and he stated his beitef that pienty of it was to be had for the getting out. The price it fetched was 23t, per ton, so that not much doubt can exist that the mine ere now should have earned dividends if it had been well and properly worked. It would seem that the gentlemen who now think they are managing the mine are not doing the best for the shareholders, they have spent and are still spending the capital in dead works, which produce nothing, while they have worked very little of the ore, and I think none of the capels as yet.

The promises of the prospectus have not been carried out. Were they true or false? If true, why is the valuable ore not got out? If false, the sooner the directors return the money of the shareholders the better for them and the shareholders too. It is useless to try to divert the attention of disappointed shareholders by drawing a red herring before them. Suppose it were all true, that the books were imperfect, and that Mr. Tilly said what it is alleged he did say, what then? The truth or falsehood of these matters does not after the fact of the working of the mine. Those shareholders who invested their money upon the belief that the prospectus was true are not comforted by the statements which have appeared in the Journal as to the matters above referred to. They want proper and business-like management, which will carn dividends, nothing less will satisfy them.

The directors have not yet noticed the question of making some shareholders pay up in full, while others have been allowed not to do so. This is not equitable, I should suppose not even legal.

A Shareholders.

y pay up in full, while others have been allowed not to do so. This is not equitable, I should suppose not even legal.

A SHAREHOLDER.

MINING IN CARDIGANSHIRE.

SIR.—I am glad to find an improvement in most of the mines in the upper interesting the state of the county. Plyulimmon is looking very promising for a future increase of mineral; and as Mr. Paul's report appears in last week a Journal, no further writing is required on this property. At South Plyulimmon shey have lately intersected the inde in the 40 fm. level cross-cut a good depth to prove whether the lode is likely to become anything, but as they have not as yet gone through the lode is remains to be further reported upon some few days since. I hope it may turn out fully to the expectations of the agent, as the proprietor fairly deserve a reward. Esgair Lie is also on the list of improvement, standing out as boidly as ever at the head of the vale. West Esgair Lie, which has been, and till is, beling watched almost in every inch sinking of the engine or Hamilton's shaft, is improving daily; the appearance of the lode in and through the water has a very beautiful effect to anyone who studies such minerals as may be seen in this shaft—copper of a good quality, lead of superior brightness and flakey, also nicely surrounded with the most congenila gossan, considering the depth of the shaft, only about 8 fms, and presenting such a grand appearance. Certainly it must, and will, greatly by-and-bye toll for its self, and will repay the fortunate shareholders. This is the Van lode, although by some disputed, and on further west through a rich parcel of land, taken up by some influential party, who, doubtless, cre long will bring their own names before the mining public. The lode runs through the Rheidol river, where it may be seen bearing a beautiful branch of lead oro immediately entering the large and rich mining sett, now known and coming out under the name of the Aberystwith Lead Mines; really a rich property. This range of mines has been lately inspecte

I hear that Pollabras, which is the property of Mr. C. W. Popham, has been granted to a new company, who are about to work it, and that it will pay, well I have no doubt whatever. There are several (about nine) lodes in the estate, from four of five of which immense quantities of the were sold by Meal Yor Company, when the was sold as about 3%, per ton. When the mine was abandoned it was self-supporting, ever at that price. The engine was a 70-in. one. I would recommend an 80-in. one now, as depth must be contemplated by the new company. The present depth is, I think, about 126 ms. under adit, which is about 20 fms. deep at the engine-shall. This alit was driven by Mr. Popham's late randfather, Mr. Wallis, who charged the late company with the cost of it. Poliadras was under the bounds, because the working has not been continuous.

PENHALE MINING COMPANY has shown great pluck by working sol ong under such difficulties. It is to be hoped that they will be rowarded yet. Punhale did yield largely.

WHEAL ROSE, alias Pulrose, is a little mine in Spernon Estate, and is 13.7, by a small steam-engine, which was carried thither from Trevenan, If Wendron. The shareholders generally were unable to respond to calls, and, If wendron. The shareholders generally were unable to respond to calls, and, If wendron. The shareholders generally were unable to respond to calls, and, If wendron. The shareholders generally were unable to respond to calls, and, If wendron. The shareholders generally were unable to respond to calls, and, If wendron. The shareholders generally were unable to respond to calls, and, If wendron. The shareholders generally were unable to respond to calls, and if we working soon ceased; but I know that from a shallow level they taked in a very short time a parcel of tim, which was sold at Treloweth for the proprietor push forward, leave nothing unturned the provided for it. The depth of the mine is about 35 fms. from surface, having an add to about 15 fathoms. A man called Champion returned a great deal of th

STABLE WALLAND AND MILE MICHAEL TOLLDAY

next week's Journal to speak of their doings and dealings, as I ever am and have been. Sampson Trevethan, Mining and Consulting, Engineer. en. Sampson Trevethan, Mi Rheidol Cottage, near Aberystwith, April 26.

THE ERGLODD AND PENPOMPREN MINING COMPANY,

THE ERGLODD AND PENPOMPREN MINING COMPANY.

Sir.—There exists a well-known legal device, as fallacious as it is vile, the practical aim and intention of which is to abuse the counsel for the opposite side when there is "no case." In the Mining Journal of April 6 I felt it my duty (thankless task) to expose the gross misrepresentations appearing in the prospects issued by the promoters of the above company; and certain letters in reply thereto, written by or on behalf of those who made such assertions, and appearing in last Saturday's Journal, merely serve to furnish another striking example of the signal and worul failure of any attempt at sheltering under the thorny bushes of the "dodge" referred to. No amount of vain bragadocia and personal and vulgar abuse will prove that misrepresentation means truthfulness; and as I very much fear that any endeavour to "improve the occasion" by enlarging upon the virtue and excellence of veracity in mining reports would, in this particular instance, have no greater effect than pricking the ekin of a rhinoceros with a toothpick, I will refrain from saying anything more on this point. Nevertheless, I trust the lesson may not have been altogether thrown away; and if my former letter, by exposing untruthfulness and extravagant exaggeration, has had the intended effect of preventing an undeserved milking, by such instrumentality, of that bountiful old cow—the public, it will have served its purpose.

In conclusion, I adhere strictly to every word contained in my letter, and Capt. Francis is persistently incorrect when he says no steps were taken to prove whether the "immense mass of ore" he predicted would be "immediately laid open." from the "green tint." he saw 20 years ago, existed or not. Mr. T. L. Cottingham imagines 60 szs. of silver is not an extravolinary yield for Cardiganshire. Can he name half-a-score mines in the county that average, not 50 ozs. but even 25 ozs. to the ton? I have had the supervision of other Cardiganshire. Can he name half-a-score mines in the coun

ERGLODD AND PENPOMPREN MINING COMPANY.

SIR,—I have just read in the Journal of April 6 the uncalled-for epistle from Mr. Edward Gledhill; and, while far from being able to compilment that gentleman on the course and style he adopts therein, I cannot, in justice to myself, allow his letter to pass unnoticed, though I usually refrain from answering such contradictory statements.

Mr. Edward Gleichill; and, while far from being able to compliment that gentleman on the course and style he adopts therein, I cannot, in justice to myself, allow his letter to pass unnoticed, though I usually refrain from answering such contradictory statements.

If Mr. Gleichill had taken the trouble to have inserted the portion of my report correctly, he would find that I state as follows:—"And I believe it is a well-known fact in the neighbourhood that the late Dr. Dobson realised a very handsome income even from this very limited working." Such are the local statements. Now, I maintain that during Mr. Gleichill's management the workings were limited, as a nyone acquainted with mining can see for themselves by visiting the propertey.

In March, 1853, Capt. Samuel Trevethan states the mine to be 30 fms. below addt. From this it would appear that during Mr. Gleichill's management the shaft was not sunk; and from indications no great depth was reached under Mr. Gleichill's supervision. Can this be considered by him working a mine property? Well, Sir, 6800. from our raised from these mines has been made, as shown by the proprietor—Mr. Davies Knock. Perhaps, therefore, Mr. Gleichill's will be so obliging as to give a dieled working expenditure; for, as the working miners state, they produced the ore on tribute, this ought to haveleft a large margin of profit for the lessee. Again, Mr. J. M. Davies, the landiord, states under date March 7, 1871, that—"For six years during Mr. Hobson's working they sold 475 tons of ore (which would average something over 14t, per ton), under very indifferent agents to superintend the mine."

I would add that the seen as to superintend the mine."

I would add that plant the site of the report, and doubtless before writing, his letter had Mr. Gleichill visited the property of the one observed in property, some of the most promising of which have been discovered since Mr. Gleichill's management ceased—vide Mr. Jehn Hitchina's report), and doubtless before writing, his letter had Mr.

ERGLODD AND PENPOMPREN MINING COMPANY.

ERGLODD AND FENFOMFREN MINING COMFANI.

Sir.—Referring to our letter which you inserted in last week's Journal, we have only now to say that we have made strict enquiries, from the best sources, into the assertions made by Mr. Gledhill, as also into his position as a mining authority, and we see no reason to alter our opinion of the great value of the nine; indeed, we are now even more satisfied that a much higher authority than Mr. Gledhill must be advanced to disturb that opinion.

JOSEPH DAY AND CO.

ERGLODD AND PENPOMPREN MINING COMPANY. ERGLODD AND FERPOMPREN MINING COMPANY.

SIR,—I was exceedingly amused at reading Mr. Gledhill's smart letter on this mine in the Journal of April 6; but, in justice to the gentlemen who are about to work the mine, as I hear, in a miner-like manner (whom I know not except by repute), I must beg a small space in your columns. I can quite reconcile the discrepancies that exist between the views of those gentlemen and that of Mr. Gledhill, for I happen to know that both are correct. It is true that Dr. Hobson made large profits on the working of the mine; it is equally true that these profits were nullified by mismanagement. Mr. Gledhill, instead, of prosecuting discoveries, spent the whole of these profits in unnecessary expenses.

TRESAVEAN MINE.

TRESAVEAN MINE,

SIR,—Most of your readers are conversant with the name of Tresavean Mine, once so rich. It is now being worked above the adit, which is 60 or 70 fathoms deep, under the direction of Messrs. Edmund Michell and Son, with prospects of good results. It was worked for copper only, now for the specially. I have no doubt that the present company will succeed so well above the adit as to induce them to erect machinery to pump the water out of the bottoms, which are 300 fms. under adit—the deepest mine in Cornwall. The managers are cautions men, and advise, I understand, that a profit of 10,000k be made before attempting any works under the adit. Immediate profits are certain, so that I have as firm persuasion that the bottom of this mine will be seen again before four year pass away. Mr. Michell's ancestors have occupied Tresavean farm ever since the Rogers's family have owned it, now more than 200 years. That fact speaks well of the family.

NORTH TRESKERBY MINE.

NORTH TRESKERBY MINE.

SIR,—North Treskerby, like several other mines in the district, is under water, so that little can be done underground. Preparations are being made for the erection of a large engine (80 ln.) on the eastern part of the sett. When this has been erected there will be ample power for draining the mine to a great depth under the present bottoms. A considerable additional value to the sett must have been made by the rich discovery in the Briton Mine, adjoining at the east, where the lode is said to be worth 500, per fathom, about 100 fms. from North Treskerby boundary. It is satisfactory to learn that the ground required by the company has been granted—i.e., additional ground east and north. It was very judicious on the part of the manager, Capt. Richard Pryor, to defer any expensive operations before this addition was granted. I consider that Capt. Pryor is entitled to the thanks of the company for his good management, in all respects, from the time he undertook it until now. He is an indefatigable agent.

St. Agnes, April 17.

NEW GREAT CONSOLS.

NEW GREAT CONSOLS.

NEW GREAT CONSOLS.

SIR,—Having recently visited this mine on behalf of an interested party, I was very much pleased with the condition of the machinery, and with all the arrangements, which are the most complete of any in the county. There are now at work a battery of 60 heads, and 6 of Brunton's calciners, such as are not to be seen elsewhere in Cornwall, having such superior chambers and flues. The flues are a mile in length. The tin returned is about 26 tons per month, and of arsenic there is about 160 tons per month sold, which minerals will leave a profit to the company now that the expensive works are completed. "Honour to whom honour is due." Great credit is due to the manager, Capt. Richard Pryor, for his carnest attention to the interests of the company, and for carrying out the manifold works here with expedition, economy, and sound ndgment.—April 17.

NANT-Y-GLO AND BLAINA IRONWORKS COMPANY.

SIR,—Is not the course which the directors of the Nant-y-Glo and Blaina Ironworks Company have followed an unusual one? When they declared their first dividend last month no circular was issued to the shareholders—no public meeting, to which the shareholders should be invited, was held, there to receive an account of the progress and results of the company for the past haif-year. Now, considering their very sensational prospectus, which drew out applications for three times the amount of shares required—the high promises made by the Chairman, in which he alluded to the prosperous state of the iron trade, and the immense weekly output of coal; the fact, too, that the company were as well great landed proprietors, having a rental of 32,000l. a-year, the results appear to be singularly discouraging.

singularly discouraging.

It is not easy to conceive how men of business like the directors could have so miscalculated—even to the amount of 80,0001. a-year—the resources of the concern; for this was the supposed balance to be left after paying the preference shareholders, and this is now reduced, it seems, to mil, if there be nothing to distribute among the ordinary shareholders. The least the ordinary shareholders ought to expect from the directors is to be furnished with the half-year's account of profit from iron, coal, and land rent. — A DISAPPOINTED SHAREHOLDER.

ISSUE OF MINING SHARES.

ISSUE OF MINING SHARES.

MY DEAR MR. EDITOR,—You will forgive the little adjective, won't you's you know everything is dear, so very dear just now. Naturally of a a reflective turn of mind, I have been cogitating over many things connected with mining, and some I cannot solve to my own satisfaction at all; so will just take one for the subject matter of this letter.

We will suppose that a certain (if there be such a thing) mine is floated on the market, built up of 1000 shares, but that, owing to the rise in the money market, or to the fail of that in metals, to the floods of winter (which this last season have been [in Cornwall] greater than any in the memory of that oft-quotted individual, the "oldest inhabitant"), to the drought of summer—owing to anything you may acribe it—the said 100 shares are not all "placed," that the scrip for 200 of them lie snugly esconced in the secretary's desk,—we will further suppose that things go on in a "dog-

trot" sort of fashion; that this mine as it opens out indicates neither a brilliant future nor yet signs of failure, that shares are still at par or thereabouts,—very well, after awhile we are startled some fine morning whilst reading our "Daily" over our cup or "Souchong" by the intelligence that the mining world is in a state of the greatest excitement, that in this mine they have cut the lode, and cut it so rich that within 24 hours the shares have gone up "tenfold."

I would now ask—mind, I know nothing at all about these things, obviously, for if I did know writing this would be a work of supercrogation—is there necessarily anything to show that since the books were last audited, examined, or has not "soid" to some enterprising individual the whole or a portion of these hitherto unallotted shares?

If I am intelligible, perhaps you will insert this letter in the next issue of your

nese httherto unallotted shares? If I am intelligible, perhaps you will insert this letter in the next issue of you aluable Journal; if not, it must find its way into the waste-paper basket; an fter all it won't much matter, as I am only—

AN ADVENTURER.

MINING IN BREAGE.

MINING IN BREAGE.

SIR,—In a local paper, published at Truro last week, it was stated that Godol phin Mine yielded 100,000. a year profit for several years. This is an error the entire profit was 90,000. on copper only. Two or three poor men were stream ing in the valley about the year 1800, and cut something of which they did not know the nature. A stone was shown to the late Capt. John Pearce, who knew it to be rich copper ore. He went immediately to Messrs. Williams (Scorrier) who applied for and obtained a mining lease, under which they worked about seven or eight years, and exhausted the copper ore. About the year 1835 another company was formed, by Capt. Lyle and Co., who worked the mine 12 years at a loss. The company intersected a good lode, called the "Orchard lode" (because it runs under Godolphin orchard), which yielded a large quantity of both copper and tin ores, that now would pay well. I hear that a gentleman in Truro hat taken up the sett, and is forming a company to work South Godolphin. The capital required is only about 80001, for I hear it is not intended to drain the old mine at present.—Breage, April 17.

capital required is only about 80001. for I hear it is not intended to drain the old mine at present.—Breape, April 17.

FLORENCE TIN MINE COMPANY, PERRANUTHNOE.
Sin.—Your correspondent, "P. I.," in his letter inserted in the Journal of April 6, desires to know, through the medium of the Journal, "the estimated value of the different parts of Florence Mine, and the number of tons of black tin stored away for the calciner." If "P. I." had referred to the agents' report in the Journal of the previous week (March 30) he would have seen that they have therein given the values of the several parts from which they are breaking tin; giving an average value of nearly 27. per fathom. In the Supplement to that week's Journal (p. 350) you give a report of the meeting of the Dolcoath Mining Company, with details of the accounts for January, in which it is stated that "the aggregate value of 16 principal points in the flop into the the same: and when it is borne in mind that the deepest of these points in Florence are only 20 fms. under adit, and that many of the above points in Florence are only 20 fms. under adit, and that many of the above points in Florence are only 20 fms. under adit, and that many of the above points in Florence are only 20 fms. under adit, and that many of the above points in Florence are only 20 fms. under adit, and that many of the above points in Florence, moreover, do not include those on the rich loide which was interested at the 26 under adit, and worth at least 1002, per fathom, but which was interested and at work. Nor do they include those on the rich loide which was interested and at work. Nor do they include those on the rich loide which was interested and at work. Nor do they include those on the rich loide which was interested and at work. Nor do they include all the lodes at the new engine-fred and at work. Nor do they include all the lodes at the new engine-fred and at work. Nor do they include all the lodes at the new engine erected and at work. Nor do they include all the lodes at th

THE QUEEN, THE KING, AND THE VIRTUOUS LADY

THE QUEEN, THE KING, AND THE VIRTUOUS LADY

MINES.

SIR,—For the past six months I have worked the two former of these mines at a very heavy cost, almost exclusively myself, and I am now resolved to go no further without the assistance of the shareholders; therefore, I publicly announce that a week or two hence, at latest, must see the three mines wound, up, and every penny will be lost unless one and all lend a helping hand. I maintain to the last that three better properties cannot be found in England, especially by being blended with the amalgamation process for the extraction of silver from low-class ores, only they cannot be made successes without capital. Here is the Queen Mine, the machinery alone has cost thousands of pounds, and yet for the want of money and coals not a day's work in a week has been done since it was put up. After this asnouncement, and when the mines are being served with writs from clamorous creditors, it will be the shareholders' own faults if the properties as into the hands of others, just as success is so near. I say, maintain, and can prove a positive certainty of success—no speculation or the least shadow of a doubt whatever. To forfeit these properties is right down sheer madness. It is of no use attempting to get away from facts; 12 heads of stamps if supplied with stuff and kept going, will stamp 12 tons per day of 24 hours; here we have, according to the statements of the agents, mineralised matter that will contain arsenic, copper, tin, and silver. For argument sake we will take only the tin and silver. Week after week reports have appeared in the Journal that the lodes would average 1 cwt. tin, and 10 to 12 ozs. silver per ton; say it is only ½ cwt. per ton, there would be 241, income per day, and as I get credit for being so imaginative, say it is only 124. Again, there is the silver; I say that if each ton contains 10 ozs., 12 tons will do 120 ozs. Allow that only half the silver is extracted, the product is 60 ozs., or 151, per day. Then where is the tin or the silver?

his best, instead of waiting a few weeks, to swell the 10t. to 20t. with costs to fatten some lawyer.

The heads of the drags containing the stuff as stamped would have to be calcined to remove the arsenic, and a little extra fire and salt converts the silver into chloride; it can then be revolved in the barries, the silver is extracted, and the stuff would be so cleansed that a few hours more in the hands of the tindresser would see the tin ready for sale. The Queen Mine, even in its present troubles, its a great success, as last month, with the machinery and stamps going a few hours per day, some days not at all, we sold a parcel of copper 80t., tin 50t., and some 150 ozs. silver.

There, I don't believe 300 tons have been stamped from the first to the last, and if there exists a secretary or a mining agent who has found a rich mine.

There, I don't believe 300 tons have been stamped from the first to the last, and if there exists a secretary or a mining agent who has found a rich mine, and can make returns without machinery, and that machinery in motion, to dress the ores I should be glad of his secret. Last week I was at the mine and paid 101, for coals, the result of which was the tinstuff could be stamped and burnt, and I hear they have now about ½ ton tin and 100 ozs. sliver for me; then they may keep it, as I further hear the whole machinery is idle again through want of coals, and I mean to have nothing further to do with the affair, miess the shareholders one and all help; only to see that, if they refuse, a fortnight hence they shall have the mines wound up in reality, in justice to the creditors, whilst 20s. in 11, can be paid.

hence they shall have the mines wound up in reality, in justice to the creditors, whilst 20s. in 1l. can be paid.

I ask the creditors to wait a week before putting the companies to further expense, and if in that time the sharcholders have not answered to my appeal, then they may wind the lot up as soon as they like for aught I shall endeavour to oppose it. I am the greatest victim, as my calls upon shares not due for mouths amount to 1500l; but if the ship must sink, I will sink with it, and no one is more resolved to face the worst if the sharcholders, the many, will not help the one, than

Palmerston-buildings, Old Broad-street, London.

THOS. J. BARNARD.

NATIVE GREY AND RUBY SILVER.

SIR,—The communication of "Alpha," in the Supplement to last week's Journal, simply shows his ignorance of this district, and especially of this property. I merely stated facts, which I am prepared to prove when called on to do so; and they will not be considered so very extraordinary when it is generally known that so rich are the deposits that this mine rose in value 100,0001, in one day. It is, no doubt, very praiseworthy in "Alpha" to suggest that the lords got their share as well as the Government. I am happy to tell "Alpha" (which most likely he knew before) that we are the lords of both the surface and undragnound, and have one only to account to ourselves, and I have no doubt the Income Tax Comand have only to account to ourselves, and I have no doubt the Income Tax Com-missioners can do their duty without any reminder from him. I am afraid, nevertheless, that I must attribute more intended will than desired good by this communication, and from what I know of him I fear his principal occupation is in the former direction.

C. PENGILLY. is in the former direction.

East Cornwall St. Vincent Mines, April 18.

EARTHQUAKES.

EARTHQUAKES,
SIR,—In the Journal of the 6th inst. there appears an account of the meeting of the Sterra Buttee shareholders, at which, in answer to an allusion that was made to the late disastrous earthquake in California, a gentleman is said to have stated that earthquakes are felt only at the surface. Another publication makes him to have said that their influence in not felt at a greater depth than 50 or 60 ft. Now, would it not be interesting to know by what law the influence of earthquakes should be confined to the surface, or to the depth of 50 or 60 ft. therefrom? Above all other places, might not one be led to suppose that in the bowels of the earth, whence they emanate, earthquakes would be felt? And so they are.

From earthquakes I have seen the sea recede and return to its bed; have felt and seen the convulsions of the interior of the earth as well as of its surface. Notwithstanding, earthquakes are comparatively local—6.9., at A they may have been most sensibly and most disastrously felt, and at a distance of from 30 to 50 miles therefrom scarcely felt at all; but I believe that there is no depth in the interior of the earth which counteracts their influence when felt immediately at the surface. When underground in a mine, not only at the depth of 50 or 60 feet, but of more than 50 of 60 fathoms, on the occurrence of an earthquake I have found it impossible to retain my footing. The entire globe appeared to reel to and fro, and to tremble and fquiver to its very centre. The bottoms of the levels or galieries hewm in the marble rock seemed to undulate, their sides to approach each other, or rather to open and shu with lightning-like rapidity, as though total collapse would in a momentate place. Everything was in instantaneous, fearful, and indescribable commotion, as though the convulsions of the lests day had come.—5, Austinfriars.

J. LEAN.

Royal School of Mines, Jermyn Street,

[FROM NOTES BY OUR OWN REPORTER.]

LECTURE XXXIII.—The various methods of securing the shaft (said Mr. SMYPH) which I have spoken of are not intended to said with cases in which great pressure is brought against them by a heavy column of water; or, in other words, to render a shaft capable give keeping back such a column. In cases of this sort the shafts must be secured by totally different methods, although such timbering to stone or brick lining, as I have described might be available against the state of no great importance, such, for instance, as is frequent. stone or brick lining, as I have described might be available againg pressure of no great importance, such, for instance, as is frequently met with in starting and in sinking through the soil or ground est, est the surface. Timber frames may be placed on each other, and assixted when so put close by being set in moss, or if brick or stone work by being set in hydraulic mortar, so as to resist a small country of water. Indeed, in such cases it is sometimes a question whether the water should not be allowed to go into the mine, and be pumped to go into the mine.

the water should not be allowed to go into the mine, and be present out again. This, however, would not oft the influx should as great as to interfere with the working of the shaft; and in use and an actually a great as to interfere with the working of the shaft; and in such as more mous influx of water as to be analogous to an artesian well, one mous influx of water as to be analogous to an artesian well, one working the means used for its removal, and causing the total water as the shaft of the work of the water and the shaft of the water and the water and the shaft of the water and the w Idued by means of a flat chisel, and driven home: the space at the bace, between the curb and the ground, is similarly driven full of wedges. When this is comploted, other curbs, called "spiking curbs," about 2 feet asunder, are put in and planking, 2½ to 3 in, thick, bevelled to fit the sweep of the circle, are fastened on with iron spikes, the spaces behind being filled with packing. This repeated until a point is reached in which another strong oak wedging curbean be put in; and if necessary the tubbing can be built up in this way to the strate. A tubbing of this kind is capable of bearing up against a pressure of column of water 20 or 30 fms. in height, a pressure probably of about 100 lbs. to the equare inch. Unfortunately, the water in a large proportion of mines is either sait or acidulous, and the spikes of iron are soon destroyed. Copperbal have been tried, but they are too expensive; and plank tubbing requires rewal so often as to make it very expensive. Then, to preserve this tubbing, or buckets, from beating against it. [The lecturer exhibited a number of drawings, representing plank-tubbing as carried out in the Newcaste district. About the same time, or shortly afterwards, solid wood tubbing was tried in the Belgian and Northern French collieries. I ought to have mentioned some that all these plans necessitate the employment of powerful pumping maching to keep the opening clear from water while the men are engaged in the priminary work. In solid, as in plank tubbing, a piece of avourable ground make a suitable piece, or seat, for the tubbing. This is make a most of the possible with the pick and gad, and on it is placed a wedging an long in the proposed of the possible with the pick and gad, and on it is placed a wedging and plank tubbing, a piece of favourable ground make a suitable piece, or seat, for the tubbing. This is make a most of workers (plottes), so that the men are engaged in the points as a chiesi can be made to enter, and the space at the back crammed full with thousands of wedges (p

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April 20, 1872.]

Supply

Is this country, however, it has been found to be so expensive as compared with it is not much used, except at one or two places in the North. It is not much used, except at one or two places in the North. It is not much used, except at one or two places in the North. It is not much used, except at one or two places in the North. It is not much used, and it is not eases with offered of the shaft, being put together with rivets, and in some cases with distribution of the possible to sink to a satisfactory bed for a foundation, the week property of the possible to sink to a satisfactory bed for a foundation, the week property of the possible to sink the watery ground, a well-carried out the system of the possible of the work of the mine free from spisses the property of the product of the property of the product of the produc

THE CHEMICAL PHENOMENA OF IRON SMELTING.

THE CHEMICAL PHENOMENA OF IRON SMELTING.
Those who have had the advantage of hearing Mr. I. LOWTHIAN BELL speak upon subjects connected with the chemistry of metallurgical processes will have no difficulty in estimating what an enormous jacs of information he is likely to impart in a volume of nearly 400 pages, devoted to the consideration of the Chemical Phenomena of Iron Smelting; yet to give an outline of the 45 sections, each relating to a class of experiments distinct from the others, into which the book is divided is by no means so easy a task. The actions and reactions which take place in the blast-furnace during the separation of the iron from the impurities with which it is associated whilst in the ore are so numerous and complicated as to be absolutely bewildering to any but those whose constant employment in the neighbourhood of the furnace facilitates the methodical arrangement in the mind of the observations made. Combined with the advantage bournood of the discretations made. Combined with the advantage of more than 25 years' experience as a practical manufacturer of pigien, Mr. Bell has that of being an experienced chemist and a careion, Mr. Bell has that of being an experienced chemist and a carefal observer, so that in making the researches necessary for writing his book it is unlikely that any important point would escape investigation, and as he acknowledges the assistance he has received from Mr. C. Wright, D. Sc., in the working out of the details, it is equally unlikely that any experiment which could assist Mr. Bell in arriving at accurate conclusions will have been neglected.

During the last seven years, as Mr. Bell informs us, the Cleveland ironmasters have reduced their consumption of fuel by about 30 per cent, on a given weight of metal produced. This has been accomplished by enlarging the furnace and raising the temperature of the blast, and that the value of the fuel economised amply compensates for the increase of capital now required in plant to produce a given

blast, and that the value of the fuel economics a line py compensates for the increase of capital now required in plant to produce a given quantity of iron. The existence of carbonic acid in the blast-furnace is questioned, and henceforth it will be acknowledged that carbonic is questioned, and henceforth it will be acknowledged that call oxide is the chief, if not the exclusive, product of the blast on the fuel. The formation of carbonic acid, proving the commencement of the deoxidation of the peroxide of iron (with perfectly fresh Cleve-land ore) was about 200° C. The speed at which the carbonic oxide passes over the ore materially affects the result, but not uniformly, it appears, for different ores; thus, passing 245 litres of carbonic oxide instead of 63 litres in the six hours removed 50.6 per cent, in-stead of 37.3 per cent, of original oxygen from calcined Cleveland ores, and 41.9 per cent, instead of 15.4 per cent, from calcined spa-these ore.

those ore.

The experiments for ascertaining the behaviour of oxide of iron in contact with carbonic oxide at a red-heat, showed that at a heat visibly red in daylight calcined Cleveland ore lost 63 per cent, of its original oxygen in eighthours; and at a bright-red heat it lost nearly 90 per cent. in 3\frac{3}{4} hours. The current of carbonic oxide was sufficient to the content of the content of carbonic oxide was sufficient to the content of the content of carbonic oxide was sufficient to the content of the content of carbonic oxide was sufficient to the content of t 90 per cent, in 3 $\frac{3}{4}$ hours. The current of carbonic oxide was sumicient to remove carbonic acid as fast as generated, and thus prevent re-oxidation of the reduced iron. This faculty, Mr. Bell observes, of CO_2 to confer O on Fe is an impassable barrier to the complete reduction at any temperature above 400° C of Fe₂ O₃ by its actual equivalent of CO, the equation Fe₂ O₃ \times 3 CO=2 Fe+3 CO₂, being under the circumstances a chemical impossibility. It is, therefore, a question of the highest practical importance to astertain the laws which cover these appropriation forces regulating as they must do which govern these antagonistic forces, regulating, as they must do, the proportion of carbon in the gases, and therefore the consumption of fuel required for smelting a given weight of iron. It seems that carbonic acid does not exercise its oxidising power until near the melting point of zinc (417°C; and the admixture of carbonic acid with the carbonic acid arrests the oxidising power of the carbonic acid on iron and on persyide of iron but of course in diff. cononic acid on iron and on peroxide of iron, but, of course, in dif-event degrees. As soon as the carbonic oxide has reduced oxide of ron to such an extent that for every 100 volumes of it in the altered gases there exist about 50 volumes of carbonic acid, all further ac tion on calcined Cleveland ore practically ceases at the temperature of melting zinc, and that it is very languid at something like 31 volumes of carbonic acid to 100 of carbonic oxide.

But we had almost forgotten that space is limited for noticing the book, and were commencing to make a short abstract of the whole work; we must be content, however, to let the above short paragraph which only gives a notion of the contents of the first thirty pages of the book, suffice to show the enormous mass of valuable information which the volume contains. The reactions which take place in every fort of the black of the contents. foot of the blast-furnace have been investigated, and the nature of not of the blast-furnace have been investigated, and the nature of every step in the process, from the introduction of the raw material late the furnace to the production of the pig-iron, has been carefully ascertained, and recorded so fully that anyone in the trade can readily avail themselves of the knowledge acquired; and we have no hesitation in saying that the judicious application of such knowledge will do much to facilitate the introduction of arrangements which will still further acquaming fuel and at the same time new parts. ledge will do much to facilitate the introduction of arrangements which will still further economise fuel, and at the same time permit of the quality of the resulting metal being maintained, if not improved. The volume is one which no practical pig-iron manufacturer can afford to be without if he be desirous of entering upon that competition which now a days is essential to progress, and in issuing such a work Mr. Bell has entitled himself to the best thanks of every member of the trade. member of the trade.

*"Chemical Phenomena of Iron Smelling an experimental and practical examination of the circumstances which determine the capacity of the blast-fur nace, the temperature of the air, and the proper conditions of the materials to eoperated upon." By I. LOWTHIAN BELL. London: George Routledge and Sons, Ludgate Broadway; E. and F. N. Spon, Charing Cross.

MINERS' ASSOCIATION OF CORNWALL AND DEVON. Sactions" of the last meeting of this association have just been issued, and will be forwarded from the Mining Journal office on receipt of la. ld. In addition to the record of the meeting the volume contains a highly interesting paper on the Successive Mining Schools of Cornwall, by Mr. J. H. Collins, F.G.S.; an account of the Annual Excursion of 1871 from 1871 from the Successive Mining Schools of Cornwall, by Mr. J. H. Collins, F.G.S.; an account of the Annual Excursion of 1871 from 1871 sion of 1871 from notes made by several members of the Association; a Description of the Reduction Works of the Chontales Gold and Silver Mines, Nicaragua, by Mr. Henry Francis; papers on Gossans by Mr. W. Argall, of Great Wheal Vor, and on Lodes, Heaves, and Sildes, by Captain John Maynard, of East Pool, both of which are followed by practical discussion; Remarks on the Mineral Veins in the Parish of Constantine, by Capt. C. Noble: Remarks on the Mineral the Parish of Constantine, by Capt. G. Noble; Remarks on the Mine-

ral Phenomena of Wheal Rose, Sithney, by Mr. Hugh Stephens; and on the Burleigh Rock Drill, by the editor. There should be no difficulty in obtaining subscriptions for so useful an institution.

ROYAL CORNWALL POLYTECHNIC SOCIETY.—The annual report of NOTAL CORNALL POLYTECHNIC SOCIETY.—In a ninual report of this society for 1871 contains an unusually large number of valuable papers in addition to the President's address, Reports of the Judges, &c. The more important papers are—On the Comparative Health and Longevity of Cornish Miners, by Robert Blee; on the Patent Ne-Plus Ultra Respirator; on Firmlu's Teil-tale Boiler Gauge; and on the Burleigh Rock Drill. The records of the meterological observations of West Cornwall are, as usual, very complete and of great utility. The public has the privilege of purchasing the Transactions at 2s. 6d., and this privilege will, no doubt, be largely availed of.

PARIS UNIVERSAL EXPOSITION FOR 1879—According to a corn.

PARIS UNIVERSAL EXPOSITION FOR 1872.—According to a communication from Mr. Troncindu Mersan, the exhibition to be opened in the Palais de l'Industrie under the auspices of the National Society for the Encouragement of Workmen will be a complete success. The proposition to hold it has been well received, and applications for space have been sent not only from Belgium, Holland, Denmark, England, Spain, Portugal, Italy, Turkey, Austria, Switzerland, and Russia, but also from Central America and Asia. Fearing that the Palais de l'Industrie will not be large enough, the society has already taken the requisite steps for constructing the necessary annexes. The French rallway and steam navigation companies have undertaken to convey exhibits at reduced rates. The offices of the society are at 23, rue de la Chaussée-d'Antia, Paris, and the executive are very anxious that applications for space should not be delayed. PARIS UNIVERSAL EXPOSITION FOR 1872 .- According to a com-

Death and the Physical Constitution of the Heaven Beiler Booth of the Six original articles in the April number of this Journal will be found particularly interesting to most readers who admire scientific pursuits at all, since each bears upon a subject which is attracting attention at the present time. Mr. Proctor treats of Meteoric Astronomy; the Copper Mines of Chill are described by Mr. Jamos Douglas; and there are articles on Natural and Artificial Flight, with 17 woodcats; the Geology of the Straits of Dover; the Gold Colnage; and Brief Notes on Recent Changes in British Artillery Material. The Notices of Scientific Works includes reviews of Owen's Debatable Land between this World and the Next; Schellen's Spectrum Analysis in its Application to Terrestrial Substances, and the Physical Constitution of the Heavenly Bodies; Deschance's Natural Philosophy; and Bail's Experimental Mechanics. The record of "Progress in Science," is, as usual, arranged with care and judgment.

MINING MAGAZINE AND REVIEW.—The April number of this

MINING MAGAZINE AND REVIEW.—The April number of this magazine contains the first of a series of articles on the Extraction of Metals from their Ores, by Mr. J. H. Collins, F.G.S.; the continuation of the articles on the Law Relating to Mines, by Mr. John Short, Ll. B.; and an article on Steam Boller Inspections, by the Editor. The "Current Topics" embrace considerations of the Mining Schools of Cornwall, the Law Courts, the Iron Trade of America, and Waste of Coal in Households. The Reviews, Reports of Societies, Proceedings and Notes on Notable Things are of the usual interesting character.

SCRARS AND ANDERFORMS FOR HOUSE OF LEWISE — Lider the

Proceedings and Notes on Notable Things are of the usual interesting character, SCRAPS AND ANECDOTES FOR HOURS OF LEISURE,—Under the title of "Griffin's Shilling Manuals," a series of very interesting little Scrap Books, which will prove most valuable to while away a leisure hour, are now being issued by Messrs, Charles Griffin and Co., of Stationers' Hall-court. The volumns already published include "Thoughts for Times and Scasons," "Characteristics of Eminent Men," "Odditles of History," and "Curlostites of Animal and Vegtable Life," each of which contains many hundreds of scraps, With regard to the selection and arrangement of them, it will suffice to state that the editor is Mr. John Timbs, whose name is so well known in connection with this class of literature as to command a large number of readers. It is difficult to determine which of the four volumes is the most attractive, since each is excellent, and the same difficulty presents itself in attempting to decide which is the most instructive. Each volume contains 88 pages of sound readable matter, and will be found equally enjoyable either during a railway journey or by the fireside.

How to Make Money by Patents,-The second edition of Mr. How to Make Mokey by Patents.—The second edition of Mr. Charles Barlow's pamphlet giving this very useful information has just been issued (London: Barlow and Co., Patent Office, Southampton-buildings) in a considerably enlarged form. The treatise contains an excellent outline of the principles upon which letters patent are granted, and a large number of suggestions which will prove of great value to inventors and capitalists interested in patented inventions are given. That many valuable inventions are lost to the inventor through the improper manner in which the invention is protected is beyond doubt; and the assistance of a competent agent should prevent this. Inventors frequently claim more than they are entitled to, and agents, being assally only theoretically acquainted with the trade with which the invention is connected, are unable to advise, and, therefore, merely follow insiructions as nearly as they can understand them. The pamphlet is well worthy of perusal.

FOREIGN MINING AND METALLURGY.

The intelligence to hand this week as to the French iron trade is rather meagre. A temporary check appears to have occurred in the upward movement in iron and pig; no one, however, believes in the continuance of this slight check in affairs; on the contrary, the trade is looking forward to a resumption of the upward movement in quotations in which all Europe has participated for some months past. From St. Dizier we have advices of the early completion of two blast furnaces of considerable size, one at Brousseval and the other at Marnaval St. Dizier. It is stated also that the Laduron Company will shortly commence its first furnace. In the Ariège rolled iron is quoted at 12l. to 12l. 8s, per ton, first class; and Catalan and wrought-iron at 12l. 16s, per ton, in warehouse at the works. In the Nord No. 2 first-class iron is firm at 9l. 12s, per ton; the greatest activity everywhere prevails. MM, Gustave Dumont and Co. have just put into operation a rolling-mill for plates at their new works at Hautmont. The Martrat Collieries and Forges Company will pay on the 30th inst. its obligation interest, falling due on that day. The Commentry Collieries and Fourchambault Forges and Foundries Company has fixed its dividend for 1869-70 at 1l. per share; of this dividend 10s, per share was paid on Monday, and the balance will be distributed on October 15. The intelligence to hand this week as to the French iron trade is

share; of this dividend 10s. per share was paid on Monday, and the balance will be distributed on October 15.

All the Belgian ironworks are in full prosperity, and there is at present no appearance either of any slackening in their operations or of any reduction in the high prices now current. Refining pig is quoted at 4l. 8s. per ton, while casting pig sells currently at 5l. 8s. per ton. English pig from Yorkshire is offered on board ship at Antwerp at 5l. 10s. per ton; No. 1 hematites, at 6l. 15s. per ton to 6l. 16s. per ton; and No. 2, at 5l. 12s. per ton to 5l. 16s. per ton. Merchants' iron No. 1, makes 9l.; and No. 2, 9l. 12s. per ton; sheets are quoted at 11l. 4s. per ton, with an upward tendency. The proprietors of blast-furnaces in the Luxembourg complain of the difficulty which they experience in obtaining the coke which is indispensable to them to assure their regular working operations. If the present state of affairs continues, producers of pig will be obliged pensatie to them to assure their regular working operations. It the present state of affairs continues, producers of pig will be obliged to have their own coke furnaces. It appears that the exports of minerals and limailles from Belgium in January amounted to 13,006 tons; of rough pig and old iron to 2167 tons; of rails to 3936 tons; of plates to 1482 tons; of other works of iron to 572 tons, &c. The total exports of iron and pig of all kinds for the month were 14,483 tons. This total shows an increase of 10,816 tons, when compared with thet for January 1871, but it exhibits a degrees when compared with that for January, 1871; but it exhibits a decrease when compared with that for January, 1870. Among the imports effected in January may be mentioned 57,727 tons of minerals and limailles (of which 44,796 tons came from the Zollverein), and 7520 tons of rough pig and old iron, of which England furnished 6431 tons. The im-ports of rough cast-steel into Belgium in January amounted to 76 tons, and of steel in bars, sheets, and wire to 713 tons. The Belgian railway plant works continue overdone with business. The West-Prussian Railway Company is about to let contracts for 886 carriages and trucks at Bromberg. The Mein and Weser Railway Company will also be contracted as a contract of the second of the of the will also let contracts next week for eleven locomotives

markets have presented a hr been influenced by the encouraging advices received from London. English tough cake has been quoted at Paris at 106*l*.; best selected, 108*l*.; refined Chilian, 106*l*. to 108*l*.; and Lake Superior, 120*l*. per ton. There has been no great amount of business passing in copper at Havre, stocks being much reduced. The German copper markets have presented decidedly upward tendencies. The advance in tin has made further progress upon the French markets, and if, as is expected, the results of the sale in Holland are favourable, it is impossible to predict where the upward movement will stop. Banca in ingots is quoted at Paris at 168l. to 17ol.; Straits, 166l.; and English, 164l. per ton. The advices received as to the German tin mar-Banca has been dealt in at 96 fl. to 981 fl., the average price being about 97 fl. Billiton has been sold at from 94 fl. to 941 fl. Large purchases have been made on consumptive account. Lead has advanced at Paris about 8s, per ton. Rough French has gone to 20l. 8s.; Spanish to 20l. 16s., and English, 20l. 8s. to 20l. 16s. per ton. German and Belgian lead have made default upon the Paris market. Zinc has also displayed considerable firmness, as well upon the German as upon the French markets. Rough Silesian has made 251, 4s, per ton, and zinc from other sources 241, 16s, per ton. The rolled zinc of the Vieille Montagne Company brings 30t, per ton.

All qualities of coal may be said to be in good request in Belgium, although some qualities are more in demand than others. Coke sells expently at 11 per ton, and is obtained with some difficulty area upon.

currently at 11. per ton, and is obtained with some difficulty even upon those terms. Freights to Paris remain at 8s. per ton. The complaints

as to deliveries by canal and railway have ceased, deliveries being now made with considerable regularity, as well by navigations as by railways. This remark scarcely applies, however, to the Sambre, upon which navigation has been temporarily interrupted by floods. It appears that the exports of coal from Belgium in January amounted to 370,747 tons, of which 334,249 tons went to France, 32,779 tons to the Low Countries, and 3527 tons to the Zollverein. The exports of coke from Belgium in January amounted to 57,092 tons, of which 25,687 tons went to the Zollverein, and 31,116 tons to France. The French collieries are everywhere in full activity, and cannot keep pace with the orders which reach them. The largest purchasers are the proprietors of sugarworks, who have shown a determination to relieve themselves from the eventualities which occasioned them so the proprietors of sugarworks, who have shown a determination to relieve themselves from the eventualities which occasioned them so much injury during the past season. Renewed financial combinations are being matured, in order to secure the canalisation of the Meuse, the junction of the Moselle and the Meuse with the Saône, and the improvement of the canal from the Marne to the Rhine.

FOREIGN MINES.

ST. JOHN DEL REY.—The directors have received the following report, datal Morro Vello, Merch 16: Morro Vello, where 16: Morro Vello protes of the relevancy #72 and 18. Act Morro Vello protes of the relevancy #72 and 18. Act Morro Vello produce, cleven days of March, 200 dist, 16: directors and 18. Morro Vello produce, cleven days of March, 200 dist, 2: field, 1:120 dist, per 10. The prompting whoch as the vellow of the following the produce of the protest of the vellowing whoch as the vellowing whoch

improvement in the stamps and skins. Jacotinga formation still presents encouraging features.

ROSSA GRANDE (Gold).—Report for February: The health of the establishment has been very good during the month. Every place is operation has been carried on with spirit, and good duty has been done in the respective sections. The produce of gold for the month amounts to 616 oits, derived from 35 tons of ore—8'20 oits, per ton; Cachoeira, 51 oits, from 12 tons of ore—4'25 oits, per ton; Corrego, 284 oits, cost of returning same 301. I cannot easily ascertain the quantity of sufficient from this place, as a great quantity is washed in the corrego where it is found. Total cost for the month, 7561. Sa. 5d.—First Division of March: Extract from letter dated March 16: Satisfactory progress is being made in the mine department, and the only thing of importance I have to mention is that the lote in higheria.

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shaft, Cachocira, is still improving in size and quality, worth now 6 cits, of gold per ton, 2 it. 6 in. wide. This will prove of some value to us during the month hate, Cacheerra, is still improving in size and quarry, would not not be a given ton, 2 ft., 6 in, wide. This will prove of some value to us during the month.

JAVALI.—Captain Sohns, March 6: 1250 tons of quartz had been rushed. Remittunee of gold by this mail; 511½ ozs., valued at 1350.; expendiure, 11931, 17s., 101.; profit, 1541, 2s. 2d. A steam-engine and boller leaves for he mine by the West India mail sailing on the 17th inst. The new stamps have leady been soul.

the fine by the West India mail sailing on the 17th Inst. The new stamps have already been sont.

TAQUARIL.—Captain W. H. Martin reports for February that the operations, on the whole, have progressed fairly, but, owing to an unusual quantity of rain this month, some of the exploratory points have been auspended until the weather lecomes a little more settled. Repairs in shafts, levels, and water courses have been made in several places where timber was found decayed, and wood of better quality substituted. The work treated at the stamps shows a little improvement upon last month. The produce amounts to 476 bits, derived from 39 tons of stuff, equal to 1 22 bits, per ton. For the first division of March it is reported that the sanitary state of the establishment is more favourable than last month. The work excavated for treatment is being derived chiefly from No 2 beds in the back of the 25 fm. level, west of Hayment's, near the junction, and from the appearance of the sand at stamps is of low standard. CHAMPION (Gold and Silver).—The directors have advices from their agent at the mines that the net produce for the fortulght-since the preceding report was 390%. This makes total net produce for the last eight weeks 3967%, being for the respective fortulghts 637%, 10%, 830%, and 830%.

SNOWDRIFT (Silver Mining and Reduction).—The directors have received the following intelligence from Mr. Foster, their engineer:—"Second shipment of silver ore, amounting to 29,600 bs., has left for Liverpool, and assays 260 vss. per ton of 2000 bs."

CLIFTON (Silver).—March 23: In the Clifton Tunnel cast the vein

CLIFTON (Silver).—March 23: In the Clifton Tunnel east the vein is improving. To-day in my presence some fine-looking galena was broken, and altogether bears an encouraging appearance. The ore is improving in the Clifton top level, and I think is likely to be better in quality than any we have had from it before. The east driving from the Clifton shaft foot is as productive as ever; we intend making a surface opening by this driving for ventilation, and the reduction of future expenses.

we note a making a surface opening by this driving for ventilation, and the reduction of future expenses.

COLORADO TERRIBLE LODE.—The following are extracts from the agent's monthly report of February:—First Level—Stope No. 4: Very good vein of mineral, 4 in. whice, of excellent quality.—Third Level: Stope No. 5 varies in width of vein from 2 to 4 in; this is a sloo of good assay.—Second Level: Stope No. 4: It this stope we have a fine vein of ore, 6 in. wide, soild.—Third Level: Stope No. 6: Stope good all through, 4 in. wide, of soild mineral.—Fourth Level: Stope No. 2: Good vein of ore all the length of the stope, 50 by 46 ft. high; this will take until about April to work out—4 in. of rich mineral all through.—Fourth Level—Stope No. 2 East: This continues the highest grade ore in the mine, averaging from 2 to 3 in. of vein.—Fourth Level: Drift Stat: We struck the shaft on Feb. 10; after the water had run clear we made a thorough examination. I flud we are direct on the lode with our drift. The lode measures from south to north wail of shaft about 16 ft, which is full of small veins of mineral from ½ in to 1½ in. wide. Produce of ore of all grades during the month, 145 tone.

Sweetland Cheen — C. D. M. Leen M. Anders M. W. Leen W. Stope in the second of the stope of the second of the stope of the second of the second of the second of the second of the month, 145 tone.

SWEETLAND CREEK.-C. D. McLean, March 22: We have cut the

interest in the content of the content of the content of the full of small veins of small relationship to morth wail of shaft about 10 ft., which is full of small veins of month, 145 tone.

SWEETLAND CREEK.—C. D. McLenn, March 22: We have cut the funer and main seam in the new tunnel; the seam is excellent. We will now follow this scan entirely in to where we shall raise the shaft through which to the more and main seam in the new tunnel; the scan is excellent. We will now follow this scan entirely in to where we shall raise the shaft through which to the content of the

BENSBERG (Lead Mining and Smelting).-J. H. Hoffman, April 13: removed the portable engine and centrifugal pump from their for on the eld shaft, and placed them at the south-west end of the hand-pump is thus no longer necessary to keep down the water used in sinking the new shaft. We have sunk a well for the centrifuxal pump 6 it, deep in the open-cast, and found the wash ore unaltered at the bottom. I have had to wait for timber for the new shaft, but re-commenced slaking to-day, We have opened more ground on the old road, and found carbonate of lead ore from 4 to 6 it, under the surface sand in veins about 1 it, thickness. Last month's produce will be sampled and re-weighted at Stolberg to-morrow.

ANGLO-ARGENTINE.—Capt. J. Vivian, Feb. 18: We commenced amalgamating with two arrestrees on 6th instant; the first amalgam was taken

ANGLO-Altgentine,—capt. o. vivian, reo. ac. is examined as a maignmanting with two arrastres on 6th instant; the first amalgam was taken out a few days since, and looked fair. We are now awaiting arrival of retorts, which are coming up with next troop, together with last instalment of amalgamating machinery, engine, &c. The mining operations continue to progress favourably; lode at section Chairman opening out well.

PESTARENA UNITED (Gold).—T. Roberts, J. Roberts. The gold

rturn for March was 297 cs. 6 dwts. 20 srs. from 60t tons of cre. -Val Toppa: The end driving south on side lode in Zero level yields 4 tons per fathom, at 12 dwts. per ton. The stopes in back of No. 1 level north yields 9 tons per fm., at 10 dwts. per ton. The stopes in bottom of this level 8 tons of 8 dwts. The 12 dwts. per ton. The stopes in back of No. I level north yields 5 tons per fm., at 10 dwts. per ton. The stopes in bottom of this level 8 tons of 8 dwts. The end south. driving on western part of quartz lode, 9 tons per fathom, at 12 dwts. per ton. The stopes in bottom 10 tons, at 13 dwts. An intermediate drive south above No. 2 level, 9 tons per fathom, at 8 dwts. No. 1 stopes, back of this level, 12 tons per fathom, of 12 dwts. per ton. No. 2 stopes at 8 dwts. The winze on the flat lode, 9 tons, at 7 dwts. The stopes in bottom of this level, on the new lode north and south of winze, 11 tons, at 10 dwts. The end driving north of fourth cross cut, on castern part of the Great Quartz lode, 18 tons per fathom, of 9 dwts. The stope on quartz lode, under No. 2 level 15 tons, at 10 dwts. The stope in bottom of intermediate level south 6 tons of 10 dwts. The end south on quartz lode, 8 tons of 7 dwts. The winze in bottom of the meandable level south 6 tons of 10 dwts. The end south on quartz lode, 9 tons of 7 dwts. The winze in bottom of the level outh 6 tons of 10 dwts. municated to the rise in back of No. 4 level, laying open a good piece of stoping ground. In the first cross-cut, west in No. 3 level, we have reached another branch carrying pyrites. No change in the cross-cut west in the level above No. 1.—Pestarena Mines: Acquarite: The whim-shaft is now down to the 46, and we are now engaged in the skip-road in the shaft from the 33 to the 46 level. The 33 fm. level end driving south yields 4 tons per fathom of 10 dwts. per ton.—Peschiera Mine: The 55 fm. level end, driving north, 2 tons at 10 dwts. The end driving north on No. 2 lode in the 33 is yielding some ore. The end north on No. 5 lode in this level, 2 tons of 15 dwts. per ton.—Surface. In the Marmazza Valley we have in the past mouth worked on an average 28 small mills per day. The weather has been fine.

PONTGIBAUD.—W. H. Rickard, April 2: Roure: The 80, south of Agnes' shaft, yields \(\frac{1}{2} \) ton of ore per fathom. The 60 north, on Virginle's lode, Agnes' shaft, yields \(\frac{1}{2} \) ton of ore per fathom. The 60 north, on Virginle's lode,

Valley we have in the past month worked on an average 28 small mills per day. The weather has been fine.

PONTGIBATD.—W. H. Rickard, April 2: Roure: The 80, south of Agnes' shaft, yields \(\) ton of ore per fathom. The 80 north, on Virginie's lode, yields stones of ore irregularly; the same level south yields \(\) ton of ore per fathom. The 40 north yields \(\) \(\) ton of ore per fathom, and the same level south \(\) \(\) \(\) ton. The 40 north yields \(\) \(\) ton of ore per fathom, and the same level south \(\) \(\) \(\) \(\) ton. The 40 north yields \(\) \(\) ton of ore per fathom, and the same level south \(\) \(\) \(\) \(\) ton. The 40 north yields \(\) \(\) ton of ore per fathom. The lode, is poor. The rise in the back yield-\(\) \(\) ton of ore per fathom. The lode, is poor. The rise in the back yield-\(\) \(\) ton yields \(\) it to south is in a regular well-defined lode, but yield-\(\) \(\) ton yields \(\) \(\) ton of ore per fathom. The same level south yields \(\) \(\) ton yields \(\) \(\) ton or ore per fathom. The mill \(\) \(\) all \(\) ton \(\) for a diving. The rise in the back of the same level, north of Paul's shaft, yields \(\) \(\) ton \(\) per fathom; the same level north is poor, and has been suspended, being in shallow ground. Our stopes and pitches maintain their usual yield—La Grange: The 100 north, on the western part of the lode, yields a little ore, worth \(\) \(\) ton per fathom. Our tribute pitches are improved in value during the past month.—Micche: The winze in the bottom of the 20 yields a little ore, worth, with the winze in the adit yields stones of ore. We have set he adit north to drive on the No. 2 lode, which at this polut is unproductive.—La Brousse: Basset's shaft, sinking below the 120, continues in pretty hard rock.

The 120 south is in a large lode, yielding \(\) \(\) ton of ore per fathom. The 100, the same direction, yields 1\(\) \(\) ton of ore per fathom. The 100, the same level south yields \(\) ton of ore per fath

[For remainder of Foreign Mines see to-day's Journa!.]

AUSTRALIAN MINES.

AUSTRALIAN MINES.

YUDANAMUTANA (Copper).—Mr. Martin writes, under date of Feb. 22, from Adelaide as follows: I leave for the mine to-morrow in company with Mr. J. F. Botting, the gentleman I have chosen to be the company's super-intendent in the colony. I have also appointed Mr. V. Laurance, the late local secretary to the company, to act as a committee of advice with Mr. Botting in all matters connected with the company's affairs in the colony. Capt. Terreli all matters connected with the company's affairs in the colony. Capt. Terreli reports, under date of Feb. 25: I am very pleased to be able to report a considerable improvement generally in the mine, and am sure that for the future our returns will be greatly increased, and the company in a very different position in a few months,—Hill's Lode: I put the men to sink on the back at the 45, and am belased to say that the lode is turning out well. This place will turn out a great quantity of ore when we get fully at work upon it. The stopes at the 19 and 25 have been turning ont some good carbonates during the month, and are still looking well. The furnaces are working very well, and turning out a good amount of copper, which I have no doubt will shortly be very much increased. Wood has been coming in in fair quantity since the last heavy flood. Ore smelted, 395 tons; copper made, 41 tons 17 cwts. 2 qes.

POET PHILLIP AND COLONIAL (Gold).—The following telegram has been received, dated Galle, April 16, in anticlipation of the mail leaving Methourne on March 29, and due here on May 13:—"Month ending March 26; yield per ton, 4 dwts. 21 grains."

ENGLISH AND AUSTRALIAN (Copper).—Port Adelaide, March 1:

has been received, dated Galle, April 16, in anticipation of the mail leaving Melbourne on March 29, and due here on May 13:—"Month ending March 26: yield per ton, 4 dwis. 21 grains."

ENGLISH AND AUSTRALIAN (Copper).—Port Adelaide, March 1: The quantity of coal at Port Adelaide was 228 tons. There were seven furnaces at work at Port Adelaide and one refinery. The 62 tons of copper advised by last mail as in course of shipment had been increased to about 59 tons, and shipped, and there were 100 tons of copper ready for shipment.

ANGLO-AUSTRALIAN (Gold).—Mr. Kitto, Fryerstown, Feb. 29 writes—"The contractors are getting on well with the stamping batteries. Vivian and Sons have delivered nearly the whole of the castings, and the contractor for the ercetion (Summerland) has already nearly finished the building, in addiction to having the foundation for the horses' bedded in concrete. I think it will be completed nearly about the contract time." Capt. Raisback, Feb. 28, reports—'I have the honour to report progress or the mine since the lat last. No. 2 engine-shaft west has been sunk 12 feet since last report, shinking through hard compact sandstone—no present change. Depth of shaft from plat 101 ft.: at 70 feet from shaft 1 commenced a winzo on back of the lode, sank to a depth of 15 feet, and passed through several blocks of stone, but found nothing the shaft at 45 feet. Country very favourable for golden stone. I expect to cut through the lode in a few feet. Present length of cross-cut, 45 ft. At No. 1 engine-shaft east I commenced a cross-cut at 29 feet east, to enable the men to work the rich spurs so profitably worked at a shallower depth some ten years back. Obliged to abandon the drive for the present, owing to the quantity of water; will, however, hole through in a day or two." Mr. Lamb also writes—" By the mine captain's report you will see the progress made in sinking and driving; I had expected before this that sinking would have been resumed in No. 1 engine-shaft, and regret that it is not so, as I be

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney, dated Sydney, Feb. 26, with reports from the Lambion Coiliery to the 23d. The sales of coal from Lambton Coiliery during the usually slack month of January amounted to 8779 tons.

sales of coal room handon contery during the usually stack moth of January amounted to 8779 ton.

YORKE PENINSULA.—The directors have advices from the committee at Adelaide, dated March 1 last, with reports from the Kurilla Mine to Feb. 28. The committee were continuing to carry on operations on a limited scale, in anticipation of receiving advice of the steps being taken in London for raising more capital. This advice would reach them by the mail reaching Adelaide in the middle of March last, and the committee would then be in a position to carry out the contemplated work for sinking on the 17½ fms. of ore ground lying in the bottom of the 25, west of Deeble's sbaft: 10 tons of ore, averaging 18 per cent, for copper, had been sold. Capt. Anthony, in expressing an opinion as to the value of the mine if vigorously worked, writes—"Allowing for the uncertainty attending mining enterprise in cvery country. I do not besitate to say that the future of this property is settled if a fair monthly sun were expended on it, a considerable portion of which, after the first eight months, would be met by sales of ore.

be met by sales of ore.

AUSTRALIAN UNITED (Gold).—Mr. Kitto, Feb. 29:—" Great and continued mi-haps have occurred at the Central, but the manager informs me that he expects to be obtaining auriferous wash-dirt in a few days.

MINERAL WEALTH OF VIRGINIA .- The termination of the war MINERAL WEALTH OF VIRGINIA.—The termination of the war and with it the overthrow of that institution which has ever acted as the only and insurmountable barrier against the true development of the South—cither by spontaneous action or by aid from abroad—are rapidly concentrating the eyes of the whole nation upon the surprising natural wealth which Virginia contains, and are likely to reveal a grandeur and amount of resources of which the world had hitherto but a very remote conception. Any one, on taking a giance at a map of the United States, will notice that extraordinary chain of mountains rising, like a magnificent atomaly, from the vast level expanse of a whole continent. This mountain chain—the Alieghannes and the Biue Ritige—Indicate the course of one of the most extraordinary belts of richness to be found ndicate the course of one of the most extraordinary belts of richness to be found in the world. This golden zene can be distinctly traced, in one unbroken line, ver a length of more than 500 miles, extending all the way from Maryland to be south-western extremity of North Carolina, and running parallel with the dilegiantes. Its width is, in its broadest part, from 20 to 25 miles, and at time t is contracted to a distance of only 2 or 3 miles. The value of this region, however, and the second of the se Allegiantes. Its width is, in its broades part, from 20 to 25 miles, and at times it is contracted to a distance of only 2 or 3 miles. The value of this region, however, comparatively unheeded and neglected by the world at large, was by means unknown to scientific men, both native and foreign. Throughout the whole of the California excitement there were plenty of learned and practical people who were well aware of the fact that, within two or three days' easy travel from New York, the teeming soil of Virginia was concealing the very same wealth which hundreds of thousands are willing to go and delve thousands of peritous miles away in the wilds of California, Idaho, Nevada, and Colorado. But of what practical avail was all their knowledge, so long as slavery—that selfah and obdurate sentinel—stood barring the door of prograss, not only against foreign but even local enterprise? But for the overthrow of this institution Virginia and all her treasures would bave been to-day and for ages to come a scaled book to the rest of the world. Prof. Frederick Overman, one of the most skilini mineralogists of the age, says, as far back as 1851, in his work ontitled "Practical Mineralogy,"—"There are gold-bearing localities in Virginia and North Carolina which, if not equal to those of California at present, will be of greater importance in the future, and, I predict, more sure and lasting." In another place, while favourably comparing the mineral formation of Virginia with that of other more renowned localities, he says:—"It may be asserted as a fact that all native sulphurets, particularly all the sulphurets of iron, contain gold. As sulphurets cannot possibly penterate any rock but from below, we may naturally conclude that the heaviest body of such kind of ore must be conseasily ite deep in the earth. This conclusion is supported and confirmed by practice; for all pyrtecons veins are invariably found to improve la quantity and quality with the depth. This circumstance speaks very favourably for the gold formation of the primitive rock, which on an average cannot be less than 2000 feet deep. Here is a mass of precious metal, enclosed in the rock, which cannot be calculated for

ages; and, in this respect, the region in question—Virginia and,
—is the most important of all known gold deposits, California ».

PEAK DOWNS COPPER MINING COMPANY,

The eighteenth half-yearly meeting of shareholders was beginning the Sydney, on Jan. 31,—Mr. BENJAMIN BUCHANAN in thechair, the directors submitted to the shareholders the result of the pany's operations for the half-year: 6955 tons of ore, of the average of 20 per cent., had been smelted, producing 1370 average of 20 per cent., had been removed from the mine metal at an analysis. fast as made.

refined copper, Which that been removed from the mine me fast as made.

The plant, machinery, and furnaces are in efficient working order, that lately been again visited by Mr. J. S. Mitchell, one of the direct company, who continues to report most favourably on the quantity and of the ore, on the abundance of fuel in the neighbourhood, and you walke of the company's property. The steam-engine, pumping agear required for the new shafts have been constructed, and are say may to the mine. Sinking will begin forthwith, and will be proceed fast as the number of miners available for that purpose will predefast as the number of miners available for that purpose will be proceed fast as the number of miners available for that purpose will predefast as the mine, and a larger number is shortly expected. Although at the mine, and a larger number is shortly expected. Although as also of cakes had been made at 86f., and that a further rise of sail of the sail of th

Total PROFIT AND LOSS ACCOUNT.
July 1, 1871.—To dividend paid
Amount written off the book value of the mine
Dec. 31, 1871.—Out of raising, dressing, and smelting ore, refining
copper, purchase of fuel, repairs, inland carriage, freight, insurance, management, direction, interest, exchange, &c.
Decreased value of copper in suspense account

.....£162 656 13 Total £49,707 11 **** 112,333 (

[For remainder of Meetings see to-day's Journal.]

MINING IN ANGLESEY.

We gave an account a few weeks since, in the Mining Journal of the opening of the Panty-Gaseg Copper Mine, by Mr. Henry Gibsa. We have now the translation of what took place at the miner disner, which will be highly interesting to those who employ a body of

We have now the translation of what took place at the miners' diner, which will be highly interesting to those who employ a body of men under them:—

Whilst the feativities were going on at the Dinorben Arms Hotel another my interesting feature in the day's proceedings was taking place at another in. An excellent and substantial dinner was given, with his usual liberal miners and the men employed at the mine by Mr. Henry Gibbon mality, his miners and the men employed at the mine by Mr. Henry Gibbon mality, his miners and the men employed at the mine by Mr. Henry Gibbon mality, his miners and the men employed at the mine by Mr. Henry Gibbon mality, his miners and the men employed at the mine by Mr. Henry Gibbon mality, his miners and the men employed at the mine by Mr. Henry Gibbon mality in the delication of the best quality, and reflected great credit on the culinary qualification of the best quality, and reflected great credit on the culinary qualification of the best quality, and reflected great credit on the culinary on the presents at it. The repast being over, a very interesting and happy sening followed, and later in the evening Mr. Gibbon, attended by Mr. J. M. William, the managing agent of the mine, paid them a visit, and remained with the about a couple of hours. Mr. Gibbon, in addressing the men, made son very irtie and happy remarks with regard to their future condeat, happies, and prosperity. He said that be always felt happy in seeing and helping your very trite and happy remarks with regard to their future condeat, happies, and prosperity, perseverance, and Industry. To that end he would recommed and the moral scale as well as in the physical world, which could only be duely sobriety, perseverance, and Industry. To that end he would recommed and to their fellow-men, and gain influence in their day and generator, and the bigher they rose in that respect the more processed of the English language, as by it they may attain more readily the end desired—that is, efficievalionad intellectual proficien

AN INVITATION TO GEOLOGISTS.—A French correspondent, M. 12cs, writing from Bach, in the Department of the Lot, informs as that in the Cazes, writing from Bach, in the Department of the Lot, included a execuation of phosphate of lines, which is used for manuro in that district, long and teeth are constantly found which evidently belonged to animals estimated before the Flood. In particular M. Cazes mentions the task of a matedox, it centimetres in length, which was broken by the pickaxe of the labourer whetevarted it. Our correspondent adds that men of science would find a fettlissed for exploration in the district from which he writes.

An article has appeared in the market which has been called Abysinian gold, and sometimes Talmi gold. Dr. C. Winckler states that the brass, consisting of about 91 parts of copper to 8 of sinc, which has an extending of gold; a very thin sheet of gold being made to addere to them by ing them together. This gilded sheet is then formed by the artist into orns tal articles by the use of ingeniously constructed steel tools.

tal articles by the use of ingeniously constructed steel tools.

PREVENTING CORROSION OF IRON PIPES.—The invention of Mr. G. H. SMITH, of New York, U.S., is based upon the application to the from tight to be protected of a material electro-positive to the iron, and which is, therefore, attacked instead of the iron by the destructive agency that would otherwise corrode or exidise the latter. He makes for this purpose an alloy of alea and its for wrought-iron pipes or tubes the protection is best obtained by the use of couplings or connections made entirely or partially of the aforesaid alloy. For large cast-iron tubes, such as are used in towns or cities for the careagness of water, gas, or sewage, he prefers that the said tubes should have annular grooves or channels formed in them for the reception of rings, hopp, or serments made of the protective alloy. When the tubes or pipes to be protected formed part of a steam boiler, he places rings or hoops made of the guidalloy upon the said tubes at the ends of the pipes, or at such distances apart thereof

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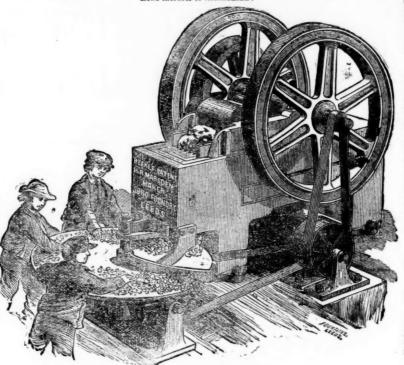
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Bangor, June 6.—We have had one of your stone breakers in use during the last 12 months, and Capt. Moreom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company,
H. B. Marsden, Esq. JAMES WILLIAMS.

The Van Mining Company (Limited), Van Mines, Lianidioes, Feb. 6, 1871 — Our machine, a 10 by 7, is now breaking 180 tons of stone for the crusher every 24 hours. I may say, of all our machinery, that for simplicity of construction and dispatch in their work, they are equal to anything in the kingdom, but your stone breaker surpasses them all, H. R. Marsden, Esq., Leeds.

surpasses them all,
H. R. Marsden, Esq., Leeds.

Chaeswater, Cornwall, Jan. 27, 1869.—I have
great pleasure in stating that the patent stone
breaker I bought of you some three years ago
for mines in Chill; continues to do its work well,
and gives great satisfaction. It crashes the
hardest copper ore stone—put it through ½ inch
size by horse power—with great case. I can
safely recommen d it to all in want of a crusher;
can be driven by steam, water, or horse power.
H. R. Marsden, Esq. JAMES PRILLIPS.

Terras Tin Mining Co. (Limited), near Grampound Road, Cornwall, Jan. 1871.—Blake's patens
stone crusher, supplied by you to this company, is
a fascination—the wonder and admiration of the
neighbourhood. It simplicitly also surprising.
Persons visiting it when not at work have been
heard to remark, "This can't be all of the machine." It will crush to a small size from 8 to
0 tons of very hard and tough elvan rock per
hour; takingt nto its leviathan jaws pieces of the
hardest rook, weighing 200 lbs. or more, masticating the same into small bits with as much apparent case and pleasure as does a horse his
mouthful of oats. On every 10 tons of the rock
crushed by the machine there is a direct saving
to the company of not less than 25 over the process of hand labour previously adopted by them,
and the indirect saving much more, the machine
being ever ready to perform the duties required
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form so fitted for the stamps, that they will putverise one-third more in a given time than when
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Jos. GILBERT MARTIEN.

H. R. Marsden, Esq., Leeds.

Welsh Gold Mining Company, Dolgelly.—The
stone breaker does its work amprable, crushing

Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quarts. WM. DANIEL.

Oveca, Ireland.—My crusher does its work most tissectorily. It will break 10 tons of the hard-t copper ore stone per hour. WM. G. ROBERTS.

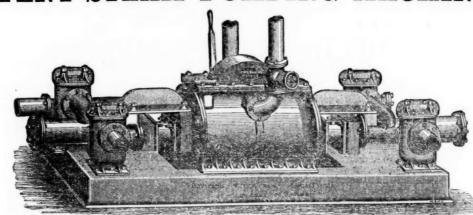
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TESTIMONIALS.

Aston Main Coal Company, near Sheffield, 1st December, 1871.

Aston Main Coal Company, near Sheffield, 1st December, 1871. To Messrs. HAYWARD TYLER and Co., 84, Upper Whitecross-street, London.

Aston Main Coal Company, near Sheffield, 1st December, 1871.

GENTLEMEN.—In answer to your enquiry, I beg to state that the two "Universal" Pumps supplied to us (through your agent, Mr. T. A. Aston) are doing our work exceedingly well. We think they are the best in the market, and shall be glad if you will send us another 9-inch evilader 6-inch pump in one week from this date.

(Signed)

Yours truly, ASTON MAIN COAL COMPANY.

Extract of a Letter from John Simpson, Esq., to Hayward Tyler and Co.'s Agent.

I should like to have the water-piston and clacks the same as in our present pump, as they work exceedingly well, and i do not think it is possible to improve upon the present pump, except by lining the cylinder with brass as ordered.

Full particulars post free on application to-

HAYWARD TYLER AND CO., 84 AND 85, UPPER WHITECROSS STREET, LONDON, E.C.

RA

No.

M^{R, J}

M B. W.
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30 Aberdaun
paid, 2
75 Bog, £2 1
50 Birdseye
15 Camp Flo
25 Cedar Cre
60 Chontale

MR. Y

M B. T

M^{R.} H.

MESSR DEA

FOR SAL 30 Aberdau 20 Alt-y-Or 50 Biaen Cs 25 Bog, £2 20 Cathedr. 20 Drake W 20 E. Grenw 5 East Lo' 45 East Set 10 Gawdon, 50 Gt. No. 25 Hobb's 1 W. D. and coath. Ord

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20 Gawton (St. Agnes &37½; 50 801, 30s.; 1 40 North 7 £3; 20 Eau 24a. 9d.; 8 Work; 10 80 Wheal East Seton 2 St. Ives (Hills. £33, mond Com 150 Paqua SPECIA. 5t. Agnes

MILL BRASS FOUNDRY COMPANY PEPPER

DARLINGTON STREET, WIGAN,

COLLIERY FURNISHERS,

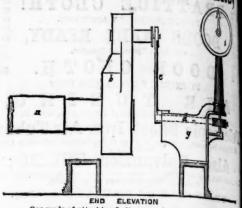
BRASS FOUNDERS, COPPERSMITHS, & GAS METER MANUFACTURERS

The PEPPER MILL BRASS FOUNDRY COMPANY beg respectfully to invite attention to their IMPROVED SELF-REGISTERING COLLIERY WINDING INDICATOR, which, in addition to its ordinary use of indicating the position of the load in the shaft, registers the number of windings, thus enabling the manager at a glance, and at any moment, to check the return of the banksman or tallyman, by reading off from the dial the number of windings for any stated time.

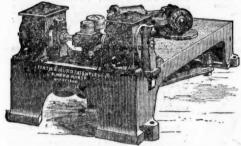
This Indicator is especially adapted for Water Winding or Pumping. Its indications cannot possibly be tampered with, and unerringly show the number of windings or strokes for any stated period, so that it will at once be seen whether or not the person in charge has been fully discharging his

These Winding Indicators are supplied either with or without the Self-registration Dial.

The Pepper Mill Brass Foundry Company will be glad to furnish, on application, sets of drawings illustrative of the simplest and cheapest mode of attaching their indicators to engines of various constructions, either vertical or horizontal.



HURD, ENGINEE



BRASS FOUNDRY CE

MAKERS

WIGAN

Patent Air-Compressing Engine. MANUFACTURER

Of PATENT MINING and

EXCAVATING

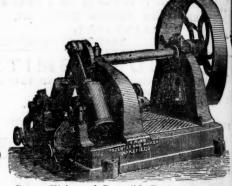
MACHINERY.

FIRTH'S PATENT

MILLWRIGHT, MACHINIST, BRASS AND IRON FOUNDER,

ALBION FOUNDRY,





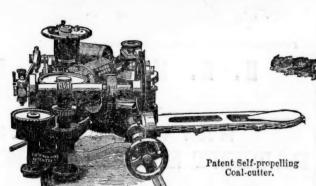
Patent High-speed Reversible Engine, without the aid of Tappets, Cams, or Eccentrics. Cylinders either fixed or oscillating.

HYDRAULIC and AIR-COMPRESSING

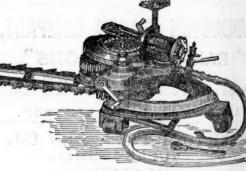
MACHINERY. Heavy, Light, and Ornamental CASTINGS. and Patent WORSTED MACHINERY.



Patent Power, or Hand Straight Work Coal-Cutting Machine.







Patent Power Pillar-and-Stall Work Coal-Cutting Machine.

Also, FIRTH'S PATENT ECONOMIC PERMANENT RAILWAY, without the aid of Pins, Bolts, or Wedges, that can be laid by an ordinary labourer with rapidity.

GENERAL CONTRACTOR; and Estimates given for Air-Compressing Machinery and Coal-Cutting Machinery on application

THE BURLEIGH ROCK DRILL.

DRILL.
IT DOES NOT GET OUT OF ORDER.

SPECIALLY ADAPTED FOR SINKING AND MINING PURPOSES. PROGRESSES through Aberdeen granite at

the incredible rate of 10" per minute SAVES £5 a day as compared with hand labour, independent of the enormous saving ef-fected in the general expenses, such as PUMP-ING, VENTILATION, INTEREST OF CAPPTAL, &c., from the fact of the "put out" being in-creased four-fold.

DRILL POINTS.—The saving in steel alone is considerable. One drill will go through 20 feet of Aberdeen granite without sharpening.

Orders received and executed solely by-Messrs. CHAS. BALL & CO.,

21, NEW BRIDGE STREET, E.C., LONDON, ENGINEERS, CONTRACTORS, AND GENERAL MERCHANTS.

PRIZE MEDALS-PARIS, 1867; HAVRE, 1868; HIGHLAND SOCIETY, 1870.

THE BEST AND ONLY PRACTICAL B. & S. MASSEY, OPENSHAW CANAL IRONWORKS, MANCHESTER.





Hammer for Wheel-making, Copper Work, &c.





Hammer for Heavy

Hammer for General Smith Work, &c. Hammer for General Smith Work, &c. Special Steam Stamp. PATENTEES AND MAKERS OF DOUBLE AND SINGLE-ACTING STEAM HAMMERS of all sizes, from 17 lbs. to Large Hammers, with Improved Framing, in Cast or Wrought Iron.

Small Hammers working up to 500 blows per minute, in some case shells worked by the foot of the smith, and not requiring any separate driver.

SPECIAL STEAM STAMPS, of great importance for Smith Work, Bolt-making, Punching, Bending, &c. Hammers for Engineers, Machinists, Shipbuilders, Steel Tilters, Millwrights, Coppersmiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutiers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c. ; also for use in Repairing Smithles of Mills and Works of all kinds, for Straightening Bars, Bending Cranks, Breaking Pig-Iron, &c. STEAM HAMMERS AND STEAM STAMPS MAY ALWAYS BE SEEN AT WORK.

London : Printed by Bighard Middleton, and published by Henry Exclisi (the proprietors), at their office, 26, Fluer Street, E.C., where all communications are requested to be addressed.—April 20, 1872.